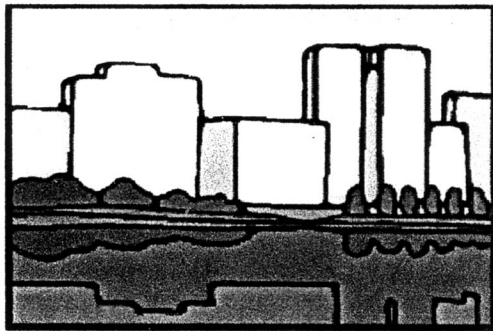


**Kentucky Nonpoint Source Management Program - 2.0**  
**for**  
**Federal Fiscal Years 2000-2005**



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## PREFACE

The vision of the Kentucky Nonpoint Source (NPS) Pollution Control Program is to implement a program that will protect the quality of Kentucky's surface and groundwater from NPS pollutants, to abate NPS threats, and to restore degraded waters to the extent that water quality standards are met and beneficial uses are supported. This vision is being achieved through federal, state, local, and private partnerships which promote complementary, regulatory and non-regulatory, nonpoint source pollution control initiatives at both statewide and watershed levels.

The main purposes of the Kentucky Nonpoint Source Management Program - 2.0 is to describe how Kentucky assesses NPS pollution impacts and threats, identifies priority watersheds and projects, coordinates technical and financial assistance for BMP implementation, selects and implements state-wide education and technology transfer programs, and designs and implements regulatory and enforcement mechanisms. This document identifies Kentucky's NPS pollution-control goals and strategies for Federal Fiscal Years (FFY) 2000 - 2005. It is our hope and intent that this document adequately describes Kentucky's NPS Pollution Control Program for the U.S. Environmental Protection Agency (EPA), program cooperators and partners, and the citizens of the Commonwealth.

The Kentucky Nonpoint Source Management Program - 2.0 for FFY 2000 - 2005 was prepared to meet the requirements of Section 319 of the Clean Water Act amendments of 1987. The document has been developed in accordance with the guidelines and specifications contained in the U. S. Environmental Protection Agency's Nonpoint Source Program and Grants Guidance for Fiscal Year 1997 and Future Years (USEPA, 1996) To aid reviewers and to provide a quick reference in locating information in this document, EPA's Suggested Index for Assessment of State Programs is included (Appendix 1).

Acknowledgments: Development and implementation of the Kentucky Nonpoint Source Pollution Control Program would not have been possible without the vision, commitment, and dedication of thousands of individuals across Kentucky. These individuals, whether they are representing themselves, their community, their agency or organization, are the backbone of the Program; they provide the ideas, motivation, and drive to unite and seek common ground for the protection of water resources for today and for future generations.

Special recognition and appreciation is extended to Nonpoint Source (NPS) Section staff, both current (Donna Blackburn, Rosetta Fackler, Dave Harmon, Peggy Jackson, Margi Jones, Monica Kope, Stephen McMurray, Joel Murphy, Danny Peake, Rodney Pierce, Jerry Pike and Mike Reed) and past (John Brumley, Chris Clements, Edith Fultz, Charles Leachman, Glynise Lipscomb, Lajuanda Haight-Maybriar, Kathleen O’Leary, Wendy Romain, Nel Ruffin, Bill Sampson and Mariam Wiley) for their dedication, commitment and perseverance in guiding and implementing the Kentucky NPS Management Program.

The NPS Section is likewise fortunate to have supportive and dedicated management. Special thanks and appreciation is extended to Water Quality Branch Manager, Terry Anderson, for supporting and assisting Section staff, to Division of Water Director, Jack Wilson, for having confidence in and commitment to the NPS Program, to Department for Environmental Protection Commissioner, Robert Logan, for providing program guidance and staff support for the NPS Program, and to Natural Resources and Environmental Protection Cabinet Secretary, General James Bickford for taking on and tackling difficult NPS issues (straight pipes, open dumps, Forest Conservation Act, swine regulations, etc.) during his administration.

Critical and integral Program partners are, unfortunately, too numerous to list. However, several advisory and steering groups deserve special acknowledgment for their persistence in coordinating nonpoint source pollution control efforts in the state: the U.S. Department of Agriculture’s State Technical Committee, the NPS Advisory Committee, the Kentucky Water Interagency Coordinating Committee (KWICC), the University of Kentucky’s Environmental & Natural Resources Issues Task Force, and the Kentucky Agriculture Water Quality Authority. The core members of these groups are driven by a common vision, which has provided the foundation and framework for targeting and coordinating resources to address nonpoint source pollution in the Commonwealth.

And lastly, special recognition is extended to the University of Kentucky, Water Resources Research Institute and Eastern Kentucky University, Department of Biological Sciences for providing contractual administrative and technical staff support to the NPS Section. Their staff positions were critical and essential for implementing the Kentucky Nonpoint Source Management Program. The University of Kentucky and Eastern Kentucky University’s support and assistance has been invaluable.

## **CHAPTER 1**

### **INTRODUCTION**

This chapter provides introductory information on the Kentucky Nonpoint Source Pollution Control Program. The program's vision statement is followed by a discussion on nonpoint source pollution, pollution control strategies, public input processes, future program updates, national vision, and program measures or "nine key elements". The Chapter ends by listing the short-term program objectives and milestones (activities) relevant to the information presented in the chapter.

#### Vision

The Kentucky Nonpoint Source Pollution Control Program shall protect the quality of Kentucky's surface and groundwater from NPS pollutants, abate NPS threats, and restore degraded waters to the extent that water quality standards are met and beneficial uses are supported.

The Kentucky Nonpoint Source Pollution Control Program is achieving this vision through federal, state, local and private partnerships which promote complementary, regulatory and non-regulatory nonpoint source pollution control initiatives at both statewide and watershed levels.

#### **Nonpoint Source Pollution**

The Kentucky Nonpoint Source Pollution Control Program is currently authorized under Section 319 of the Clean Water Act (CWA) amendments of 1987. The 1987 CWA amendments deal with a wide variety of pollutants that enter our waters by sources other than single point source discharges. Conflicts over the use of public waters are inevitable and likely to increase as the population and demands for water increase. It is clear; however, that management strategies are critical in reconciling varied but equally important uses. Protection of existing uses and the water quality to support such uses are the key components of management strategies, whether for point or nonpoint sources of pollution.

Unlike point source pollution, which enters our waters at definite locations such as discharge pipes from improperly operating wastewater treatment plants and industrial facilities, nonpoint source (NPS) pollution originates from numerous diffuse sources. Nonpoint source pollution, also known as runoff or diffuse pollution, is the number one contributor to water pollution in Kentucky; it accounts for

approximately two-third's of the water quality impairments in Kentucky's streams and lakes (KDOW, 1999c; KDOW/UK, 1999).

While the bulk of our water quality data is presented in terms of "surface water," nonpoint source pollution affects all water resources: rivers, streams, lakes, wetlands, and groundwater. Groundwater and surface water are often difficult, and sometimes impossible, to separate. From sinking streams to springs to large karst rivers, groundwater and surface water are intimately linked in Kentucky. Thus, groundwater quality is a concern that cuts across all NPS categories and is considered in every aspect of NPS pollution management.

### **NPS Pollution Control**

Unlike point source pollution, which can be collected and treated, nonpoint source pollution is controlled primarily through the adoption of practical and cost-effective land management practices that are also known as "Best Management Practices" (BMPs). BMPs allow for the continuation of everyday activities while reducing or preventing nonpoint source pollution. By using BMPs, we protect water quality while maintaining the economic value of Kentucky's land resources.

Kentucky's approach to controlling NPS pollution includes both statewide initiatives and focused watershed projects. Watershed projects are important for reducing NPS loads; they are designed to improve or maintain water quality conditions in NPS priority watersheds through aggressive BMP implementation. Watershed projects address diverse NPS concerns, utilize a variety of funding sources for BMP implementation, and include monitoring of water quality conditions as a measure of success. Statewide programs are also an integral part of Kentucky's strategy to reduce NPS pollution. Statewide programs help to raise public awareness about runoff pollution, to provide technical information on BMPs, and to develop and implement regulatory programs. Kentucky's NPS Pollution Control Program uses both regulatory and non-regulatory mechanisms to achieve BMP implementation in watershed projects and statewide initiatives.

Like many states, Kentucky does not have sufficient resources to implement BMPs for all existing or potential NPS pollution problems. Thus, in order to maximize NPS pollution control efforts, technical and financial assistance from other federal, state and local sources are cooperatively targeted to priority areas.

## **Purpose of the Document**

The original Kentucky Nonpoint Source Management Program document was developed in 1988 and approved by the U.S. Environmental Protection Agency (EPA) in 1989. Since that time, nonpoint source pollution control has grown and matured, including the institutionalization of several Section 319(h)-grant-funded initiatives. A few examples are listed below:

1. development of local soil erosion control ordinances,
2. development of state nonpoint source pollution control regulations,
3. adoption of new or revised BMPs, and
4. formation of a state-funded agricultural cost-share program

Kentucky has seen a significant increase in knowledge, interest, programs, regulations and projects related to the control of runoff pollution. While the original Kentucky Nonpoint Source Management Program (KDOW, 1989b) document served Kentucky well, a revised and updated version that better reflects the direction and needs of the state is needed.

This document, Kentucky Nonpoint Source Management Program - 2.0, identifies Kentucky's NPS pollution control goals and strategies for federal fiscal years (FFY) 2000 - 2005. It describes how Kentucky assesses NPS pollution impacts and threats, identifies priority watersheds and projects, coordinates technical and financial assistance for BMP implementation, selects and implements statewide education and technology transfer programs, and designs and implements regulatory and enforcement mechanisms. It is our hope and intent that this document adequately describes Kentucky's NPS Pollution Control Program to EPA, our program cooperators and partners, and the citizens of the Commonwealth.

Because NPS pollution control has been integrated into other natural resources and environmental protection programs, this document includes and references other pollution control programs.

Supporting appendices, including Guidelines for Developing A Competitive Nonpoint Source Project - FFY 2000 Section 319(h) Nonpoint Source Grant (KDOW, 1998a), Kentucky Watershed Management Approach Framework (KDOW, 1997b), Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999), etc., are necessary in order to accurately present nonpoint source pollution control in Kentucky. This NPS management program update does not attempt to re-write these document; rather, they are referenced where appropriate and included as appendices. The number of supporting and relevant appendices is a testament to the institutionalization and integration of NPS pollution control in Kentucky.

## **Public Input**

Kentucky recognized the need for an updated NPS Management Program document several years ago and attempted to update the document during the mid-1990s. Because of staff constraints, changes in contractual assistance and emerging statewide water protection programs, the revisions were limited. The update was put on hold in 1997, and the partial NPS Management Program update was not submitted to EPA for approval. Fortunately, all of this earlier work was not lost as much of the information continued to be relevant and was incorporated into this complete revision.

In order to generate ideas, direction and guidance from others, the NPS Section in the Division of Water hosted a large interdisciplinary participatory meeting in the spring of 1995. Members of the Kentucky Nonpoint Source Advisory Committee and the KWICC were invited to participate. Participants in this all day brainstorming session included representatives from industry, concerned citizens, federal, state, and local governments, and academia. NPS issues, concerns and needs were identified during the facilitated brainstorming session. The results were compiled and sent back to the participants for review and priority ranking. The responses were tabulated and key NPS issues and program needs were identified. These results have been used to redirect program efforts and, because the issues and needs are still relevant, are included in this update of the Kentucky NPS Management Program.

Additional public input to the Kentucky NPS Management Program - 2.0 was achieved by placing a formal public notice in major Kentucky newspapers and by direct mailing of the public notice to members of the Kentucky NPS Advisory Committee and the KWICC (Appendix 2, pages H-1 through H-2). Further input was obtained by requesting review and comment of the revised NPS management program from the Kentucky Environmental Quality Commission (EQC). EQC is an independent seven-member board set up to advise the Governor and the Natural Resources and Environmental Protection Cabinet on environmental matters. The board is composed of industry, environmental, and citizen representatives. EQC serves as an objective public forum for the exchange of views, concerns, and information relating to the quality of Kentucky's environment.

## **Future Updates**

The Kentucky NPS Management Program - 2.0 is a dynamic document; to ensure it remains current and useful, Kentucky will update and revise the document at least once every five years (Chapter 1 Short-Term Objectives and Program Milestones). Appropriate and meaningful measures of success are needed

to effectively evaluate environmental benefits and program success. Both environmental and program measures of success will continue to be obtained from numerous sources, including:

1. Section 319(h)-funded projects,
2. the Kentucky Watershed Management Approach,
3. NPS Assessment Report data,
4. TMDL watersheds, and
5. other agency efforts and resources.

These programs and resources will continue to provide environmental measures of success at both the watershed and river basin level. They provide opportunities for measuring success in terms of meeting Kentucky's NPS vision and in achieving the objectives and goals set forth in this document. These programs and resources will be used to evaluate and guide future program updates.

Kentucky will also review and revise the membership of the Kentucky NPS Advisory Committee to ensure that committee membership is diverse, appropriate, and representative (Chapter 1 Short-Term Objectives and Program Milestones). Reviewing and revising the NPS Advisory Committee membership list will also ensure that all committee members are interested and willing to participate in evaluating and advising the Kentucky Nonpoint Source Pollution Control Program.

Additionally, Kentucky gathers important public and agency feedback during preparation of its Annual Report. Kentucky uses the annual report process to review and evaluate progress in meeting short-term objectives and activities. Numerous agencies, organizations and entities are called on to provide information and to assist with developing the Annual Report. In addition to gauging progress in meeting program objectives and milestones, Kentucky uses the annual reporting process to solicit feedback from partners on program direction and needed changes. Annual feedback provides a valuable opportunity to gather information that can be used to modify program efforts (Chapter 1 Short-Term Objectives and Program Milestones).

### **National Vision and Nine Key Elements**

The long-term vision of EPA is to have all states "implementing dynamic and effective nonpoint source programs designed to achieve and maintain beneficial uses of water" (USEPA, 1996). A state's contribution to EPA's national NPS program will be deemed successful if it meets the "nine key

elements” identified and discussed in Nonpoint Source Program and Grants Guidance for Fiscal Year 1997 and Future Years: (USEPA, 1996). In this guidance, EPA recognizes that each state needs the flexibility to design and implement programs that are specific to it. An important ramification of this shift in emphasis from national to state responsibility is that states are held more accountable for making progress in achieving and maintaining beneficial uses of water.

While Kentucky is behind schedule in developing and submitting its revised NPS Management Program document to EPA for review and approval, Kentucky has effectively responded to EPA’s grant guidance by incorporating the vision and nine key elements into its program. For example, beginning with the FFY 1998 Section 319(h) Grant, Kentucky’s grant guidance and project selection criteria were revised to incorporate and focus on meeting EPA’s nine key elements (Appendices 2 and 3). In addition to fully incorporating the “nine key elements” into Section 319(h)-funded projects, other Kentucky Division of Water and natural resource and environmental protection programs are incorporating EPA’s “nine key elements” through the Kentucky Watershed Management Approach (KDOW, 1997).

Kentucky Watershed Management Approach: The Watershed Management Approach is changing the way that Kentucky manages its water resources. While watershed management is not a new concept, this is a new approach for managing all of the land and water resources in Kentucky. In 1996, the Division of Water divided the geographic area of Kentucky into five River Basin Management Units (Appendix 4, page 2-2). The purpose of forming the River Basin Management Units was to enable people, programs, information, and funds to be coordinated to protect, maintain, and restore water and land resources as efficiently as possible. By coordinating efforts and sharing resources, citizens and government will be able to do more with the resources they have.

As part of the Kentucky Watershed Management Approach, people and organizations in each basin will be involved in a cycle of activities, or steps, that will be repeated every five years. Steps in the five-year basin cycle include:

1. Scoping and Data Gathering
2. Assessment
3. Prioritization and Targeting
4. Plan Development,
5. Implementation

By coordinating efforts with other agencies and local entities (stakeholders), the Watershed Management Approach should encourage a greater emphasis on managing the resource as a whole and promoting more outside contributions. Under this approach, landowners and stakeholders would then become involved in the process of gathering information on the resource, making assessments, prioritizing issues, planning, and implementing solutions.

The Kentucky Watershed Management Approach is expanding the scope of NPS pollution control in Kentucky. From assessing the impacts to prioritizing and targeting watersheds to implementing solutions, the Kentucky Nonpoint Source Pollution Control Program is integrated with the Kentucky Watershed Management Framework. The NPS Program has adapted its program to complement the Kentucky Watershed Management Approach schedule (Appendix 4, pages 7 -9).

In addition to the Division of Water's expanded role in watershed management, the agency is moving forward in improving environmental management and decision making. Strategic evaluation of programs, processes, data management, and other critical functions are the result of a new initiative entitled Empower Kentucky.

Empower Kentucky: The Kentucky Department for Environmental Protection (DEP) is undergoing a strategic evaluation and re-engineering of its departmental processes. The initiative (DEP Empower Project) is a major commitment to evaluate processes within the Divisions of Water, Waste Management, Air Quality, and Environmental Services to improve environmental management in Kentucky. The initial focus of the DEP Empower Project to "improve the total permitting process in specific programs" has evolved into a larger project that will evaluate and improve environmental program management within the department. In addition to permitting processes, the DEP Empower Project will evaluate other common DEP processes such as inspections, compliance, enforcement, activity tracking, funding/loans, notifications, billing, planning, federal reporting and monitoring. While the project is in the beginning stages of implementation, the department expects the evaluation and re-engineering of departmental processes to improve Nonpoint Source program management through consistent reporting, combined activity tracking, and cross media reporting. The project will provide the department with a framework for future development, will enable responsiveness to programmatic changes, and will allow for better adaptability to technological changes, thus enabling sound decisions based on scientific information which result in environmental benefits. More than \$11 million has been budgeted for the DEP Empower

Project; funds may be used for improving environmental data management (including GIS), document management (imaging), web development (public access), and other process improvements.

The information contained within this document will demonstrate Kentucky's responsiveness in addressing EPA's long-term vision and nine key elements for state NPS programs. To aid readers and to provide a quick reference in locating information in this document, EPA's Suggested Index for Assessment of State Programs is included (Appendix 1). The nine key elements are incorporated into Kentucky's NPS Pollution Control Program and are summarized as follows:

**1. The State program contains explicit short- and long-term goals, objectives and strategies for protecting surface and groundwater.**

The vision of the Kentucky Nonpoint Source Pollution Control Program is to protect the quality of Kentucky's surface and groundwater from NPS pollutants, to abate NPS threats, and to restore degraded waters to the extent that water quality standards are met and beneficial uses are supported. The vision is being achieved through federal, state, local, and private partnerships, which promote complementary, regulatory and non-regulatory nonpoint source pollution control initiatives at both statewide and watershed levels.

Kentucky's long-term goal is to encourage and promote implementation of all BMPs necessary to meet water quality standards and maintain all designated uses by 2015. Short-term objectives with specific milestones associated with meeting our long-term goals are identified at the end of each chapter (Short-Term Objectives and Program Milestones, Chapters 1 - 6). Short- and long-term goals, objectives and strategies are presented throughout this document (Appendix 1).

**2. The state strengthens working partnerships and linkages with appropriate state, tribal, regional and local entities (including conservation districts), private sector groups, citizens' groups, and federal agencies.**

Effective partnerships and collaboration are key to successfully reducing NPS pollution. In Kentucky, federal, state, local agencies, industries, concerned citizens, and landowners assist with developing and implementing the NPS Pollution Control Program. Kentucky is fortunate to have strong, visionary partners. Informal partnerships such as the KWICC, the Kentucky NPS Advisory Committee, the Environmental and Natural Resources Issues Task Force, and the State Technical Committee have been

powerhouses for cooperatively targeting nonpoint source pollution control efforts. Through the efforts of these groups:

1. BMPs have been targeted to priority NPS watersheds,
2. BMP specifications have been modified,
3. BMPs have been deemed eligible or ineligible for financial assistance, and
4. Regulatory training programs have been developed and implemented.

Under the Kentucky Watershed Management Approach, the list of working partners is growing (Appendix 2). More agencies and resources are being brought together to address NPS pollution than ever before. Details on how Kentucky strengthens its working partnerships and linkages are presented throughout this document (Appendix 1).

**3. The State uses a balanced approach that emphasizes both statewide nonpoint source programs and on-the ground management of individual watersheds where waters are impaired and threatened.**

Kentucky balances statewide NPS pollution control activities and programs with focused watershed remediation projects. Statewide and watershed projects are supported and funded by numerous agencies, groups and entities. Kentucky's Section 319(h) grant advertising process, guidance document, and project evaluation and ranking process ensure that statewide and on-the-ground watershed projects are being funded and implemented.

Examples of statewide NPS pollution control programs include technological transfer (Kentucky Master Logger Program and Agriculture Water Quality Act Training), education (Kentucky Water Watch Program and Project WET), BMP implementation (Agriculture Water Quality Act, Forest Conservation Act, and Conservation Reserve Enhancement Program), and enforcement (complaint investigations). Concurrent with statewide initiatives, Kentucky aggressively targets NPS pollution control activities in priority watersheds (303(d)/TMDLs) in order to achieve full use attainment. Section 319(h) funding provides priority points for projects in priority watersheds that address the primary pollutants of concern. For example, watershed projects are underway to address NPS impacts and threats from agriculture, straight pipes (on-site wastewater), hydrologic modifications, abandoned mine lands, and recreational activities (off-road vehicles).

Kentucky's Watershed Management Approach program will be instrumental in further identifying priority watersheds, targeting resources, and coordinating Natural Resource and Environmental Protection Cabinet programs.

In addition to balancing statewide programs with watershed projects, it is important to note that Kentucky also strives to achieve other types of balance. One type is programmatic balance. Projects that provide the best and most effective solutions to local Nonpoint Source pollution problems are sought for Section 319(h) funding. The Division of Water does not prescribe the specific solutions for controlling and abating NPS pollution. Rather, Nonpoint Source pollution control projects are driven by local agencies, landowners and stakeholders who select the specific program elements that will be most effective in their watershed: education, professional training, technical assistance, financial incentives, technology transfer, enforcement and/or watershed demonstration projects. Balance among (nonpoint source) categories such as agriculture, construction, and resource extraction is also a goal. Kentucky uses the most current NPS assessment report to identify the primary NPS categories that are threatening or impairing water quality. Statewide and watershed projects that will address these primary NPS categories are then promoted, supported, or encouraged. The process for selecting Section 319(h) projects for funding has been designed to include watershed, statewide, programmatic and categorical balance. Details on how Kentucky uses a balanced approach to abate NPS impacts are presented throughout this document (Appendix 1).

**4. The state program (a) abates known water quality impairments from nonpoint source pollution and (b) prevents significant threats to water quality from present and future activities.**

This Key Element embraces the vision, goals, and objectives of the Kentucky NPS Pollution Control Program. The Kentucky NPS Pollution Control Program continues to focus on abating known NPS impairments and preventing future impacts. Statewide and watershed projects are solicited, supported and/or tailored to address all significant NPS categories and subcategories. Implementation of the Kentucky Watershed Management Approach program is further strengthening the Division of Water's efforts to abate and prevent NPS pollution. From the quality and quantity of NPS assessment monitoring data to defensible improvements in water quality, this Key Element is the core of Kentucky's NPS Management Program. Details on how Kentucky abates known water quality impairments and prevents significant threats are presented throughout this document (Appendix 1).

- 5. The state program identifies waters and their watersheds impaired by nonpoint source pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the state establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and by developing watershed implementation plans, and then implementing them.**

The Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999) is a comprehensive document that identifies NPS impacts, threats and priority watersheds (Appendix 5). The primary source of data for the report is from the 1998 Kentucky Report to Congress on Water Quality (KDOW, 1999c), also referred to as the 305(b) report. Selection criteria for waterbodies extracted from the 1998 305(b) databases for inclusion in the Kentucky Nonpoint Source Assessment Report were:

1. Waterbody assessed as having NPS impacts or threats, and either
2. Waterbody assessed as not fully supporting one or more designated beneficial uses, or
3. Waterbody assessed as having a threat to one or more designated beneficial uses (KDOW/UK, 1999).

NPS priority watersheds are 303(d)-listed waterbodies that have been assessed as either impaired or threatened. Kentucky addresses these NPS-impacted/threatened waterbodies through the NPS competitive ranking and selection process for Section 319(h)-funded projects the Kentucky Watershed Management Approach program and (Appendices 3 & 4). State priorities and watershed management plans are developed in cooperation with, and in support of, other natural resource and environmental protection programs. Details on how Kentucky assesses NPS impacts and threats and develops watershed implementation plans are presented throughout this document (Appendix 1).

- 6. The state reviews, upgrades, and implements all program components required by Section 319(b) of the Clean Water Act, and establishes flexible, targeted and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The state programs include: (a) a mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and (b) a mix of regulatory, non-regulatory, financial, and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.**

Using complementary regulatory and non-regulatory approaches, Kentucky is implementing a mix of water-quality-based and technology-based programs. While the Kentucky Watershed Management Approach program provides for a flexible, targeted, iterative non-regulatory process for addressing NPS pollution, the Kentucky Agriculture Water Quality Act is an excellent example of a flexible, targeted, iterative, regulatory approach. This Act establishes statewide agriculture and forestry BMP requirements for landowners, bad-actor protocols, a process for updating and refining BMP requirements, and a process for requiring additional NPS-control measures in priority protection areas. Details on Kentucky's diverse approaches to abating NPS pollution are presented throughout this document (Appendix 1).

**7. The state identifies federal lands and activities which are not managed consistently with state nonpoint source program objectives. Where appropriate, the state seeks EPA assistance to resolve issues.**

While the majority of land is privately owned in Kentucky, federal consistency is necessary in order to ensure that federal lands are managed in a manner that will not adversely impact water quality. Kentucky utilizes an Intergovernmental Review process to identify those federal lands and activities that are not consistent with the Kentucky Nonpoint Source Management Program. Technical support staff review and comment on federally funded project proposals (Federal Assistance Reviews, Environmental Impact Statements, etc.) to ensure that appropriate BMPs and other NPS pollution prevention measures are used. In addition to reviewing federally funded project proposals, the NPS Program has many federal partners (U.S. Fish and Wildlife Service, U.S. Office of Surface Mining, U.S. Department of Agriculture, U.S. Forest Service, and U.S. Army Corp of Engineers, etc.) that are actively involved in NPS assessments, watershed planning, project development and/or project implementation. Kentucky also maintains formal agreements, [Memoranda of Understanding (MOUs)], with federal agencies. The MOUs define NPS pollution control activities, communication processes, exchange of data, regulatory requirements and other important interagency agreements. Details on federal partnerships, initiatives and Federal Consistency Review are presented throughout this document (Appendix 1).

**8. The state manages and implements its nonpoint source program efficiently and effectively, including necessary financial management.**

Watershed projects and statewide initiatives are designed with sufficient detail to ensure effective implementation. Through the Watershed Management Approach, action plans will be developed to address critical areas within priority watersheds. Critical areas will be identified through a combination

of sub-watershed monitoring, land use/land cover data, and best professional judgment provided by the River Basin Management Team members.

All Section 319(h)-funded projects must develop detailed workplans that include scope of services, measures of success, quantifiable outputs and products and detailed budgets. For projects involving water quality monitoring detailed Quality Assurance/Quality Control Plans are required. Similarly, for projects involving BMP installation, a detailed BMP Implementation Plan is required. All Section 319(h) project proposals and workplans are reviewed and evaluated for consistency with Section 319 of the Clean Water Act amendments of 1987 prior to competitive evaluation and ranking (It is important to note that Kentucky has terminated EPA-approved projects that strayed from their approved workplan commitments and entered into ineligible areas). Projects that receive Section 319(h) funds are competitively evaluated and ranked based on criteria that judge the project's overall success.

In terms of reporting and tracking, Kentucky has populated all mandated fields in the Grant Reporting and Tracking System (GRTS) database and is using the database to track project progress. Recent program staff expansions will enable Kentucky to maintain the GRTS database and to keep current with other reporting obligations. Kentucky's new Management Administrative and Reporting System (MARS) provides fiscal accounting and tracking of federal and non-federal expenditures associated with the Section 319(h) grants. Details on nonpoint source program efficiency and financial management processes are presented throughout this document (Appendix 1).

**9. The state periodically reviews and evaluates its nonpoint source management program using environmental and functional measures of success and revises its nonpoint source assessment and management program at least every five years.**

Kentucky uses both environmental and functional measures of success to review and evaluate its nonpoint source management program. Section 319(h)-funded projects require measures of success for each project. Watershed projects require water quality monitoring in order to measure the success of the project in terms of achieving compliance with state water quality standards. All Section 319(h)-funded projects report on both measures of success and lessons learned as part of their required Final Report, which is subject to EPA review and approval.

On an annual basis, Kentucky reviews and evaluates success in achieving short-term objectives and activities as part of the state's Annual Report. In terms of a comprehensive review and evaluation,

Kentucky will revise and update its Nonpoint Source Management Plan by 2005. The revised NPS management plan (Kentucky Nonpoint Source Management Plan 3.0) will address federal fiscal years 2006 - 2010. In the event that partial updates or revisions to this document are necessary prior to the scheduled comprehensive update, each page of this document has been dated. Thus, EPA-approved revisions or changes may be located within the document.

The Kentucky Nonpoint Assessment Report (KDOW/UK, 1999) will be updated as new environmental data is collected and assessed. Partial updates will occur annually as new data is generated within each river basin as part of the Kentucky Watershed Management Approach. A complete assessment report update will be completed concurrent with the management program update in 2005. Details on environmental and functional measures of success and nonpoint source assessment and management plan revisions are presented throughout this document (Appendix 1).

## SHORT-TERM OBJECTIVES AND PROGRAM MILESTONES

Objectives/Milestones	Federal Fiscal Year (FFY)				
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### Objective 1. Provide periodic review and evaluation of NPS Management Program

<b>a.</b> Review and evaluate progress in meeting short-term objectives and program milestones through Annual Report.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Review and revise NPS Advisory Committee membership.	<b>2000</b>				
<b>c.</b> Obtain interdisciplinary feedback on NPS Management Program.				<b>2003</b>	<b>2004</b>
<b>d.</b> Revise and update Kentucky Nonpoint Source Management Program document (version 3.0).				<b>2003</b>	<b>2004</b>
<b>e.</b> Submit <u>Kentucky Nonpoint Source Management Program 3.0</u> to EPA for review and approval.					<b>2004</b>

### Objective 2. De-list a minimum of three (3) NPS 303(d)/TMDL watersheds.

<b>a.</b> Provide priority points for Section 319(h) projects in priority NPS watersheds.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Through collaborative partnerships, focus regulatory and non-regulatory NPS pollution control activities in priority NPS watersheds.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> De-list a minimum of three (3) NPS 303(d)/TMDL [NPS priority] watersheds.				<b>2003</b>	<b>2004</b>

## CHAPTER 2 BACKGROUND

In order to effectively update and revise Kentucky's nonpoint source pollution control strategies, it was important for us to look at "where we have been." This chapter focuses on achievements, accomplishments and challenges realized since the original Kentucky Nonpoint Source Management Program (KDOW, 1989b) was approved, covering a period from 1989 through 1999. A discussion of program highlights and major accomplishments, program outreach and coordination efforts, and significant nonpoint source categories and subcategories follows a summary of Section 319(h)-funded nonpoint source projects. The Chapter 2 ends with a discussion of NPS program management, including staff support, project management and oversight, project and program reporting, and grant and contract administration.

### Section 319(h) Nonpoint Source Pollution Control Projects

Funding provided under Section 319(h) has been instrumental in helping Kentucky initiate nonpoint source pollution control projects and programs. Section 319(h)-funded NPS pollution control initiatives are summarized below:

#### FFY 1990 Section 319(h) Nonpoint Source Implementation Grant - \$ 744,473 (Federal Funds)

PROJECT TITLE	PROJECT TYPE
NPS Staff – Division of Water	Staffing & Support
NPS Staff – Division of Conservation	Staffing & Support
Public Education – Nonpoint source Pollution Slide/Tape Program and Brochure	Statewide Education
Urban Nonpoint Source Education Projects	Statewide Education
Evaluation of Best Management Practices to Improve Water quality in Karst Drainage Systems	BMP Demo.
Social and Economic Study of Agricultural Practices on Water Quality	Statewide - Education
Demonstration of High Technology Methods of Implementing BMPs for the Practicing Logger	Statewide – Tech. Transfer
Public Education – Kentucky Master Logger Program and BMP Guides	Statewide – Education & Tech. Transfer
Construction Education Program	Statewide - Education
Update of Agricultural BMP Manual	Statewide – Tech. Transfer & Education
Groundwater Education and Testing Program	Statewide - Education
Karst Area Water Quality Project and Demonstration Farm	BMP Demo.
Riparian Area Education	Statewide - Education
Land Resource Needs Assessment	Statewide - Education

**FFY 1991 Section 319(h) Nonpoint Source Implementation Grant - \$ 698,537 (Federal Funds)**

<b>PROJECT TITLE</b>	<b>PROJECT TYPE</b>
Maintain NPS Staff – Division of Water	Staffing & Support
Maintain NPS Staff – Division of Conservation	Staffing & Support
Mammoth Cave/Turnhole Spring Groundwater Basin Demonstration Project	Watershed Demo. - Agriculture
Demonstration Monitoring Project – Upper Salt River/Taylorsville Reservoir Watershed	Watershed Demo. - Agriculture
USDA FFY92 Water Quality Project	Watershed Demo. - Agriculture
Groundwater Education and Rural Well Water Testing Program	Statewide- Education
Animal Waste Nutrient Management Program	Statewide – Education & Tech. Transfer
Agriculture Chemical Container and Unused Chemical Collection Program	Statewide –Education & BMP Demo.
Characterization and Quantification of NPS Pollutant Loads in a Conduit Flow Dominated Karst Aquifer Underlying an Intensive Use Agricultural Region	Assessment Monitoring
American Museum of Caves and Karstlands – Groundwater Exhibit	Statewide Education
Evaluation of Best Management Practices as Related to Water Quality	BMP Demo
Municipal Urban Education Programs	Statewide Education
Big South Fork/Bear Creek Interstate Watershed Demonstration Monitoring Project	Watershed Demo. – Resource Extraction
Educational Video Tape on Preventing Nonpoint Source Pollution from Abandoned Mine lands	Statewide - Education
Use of Constructed Wetlands to Treat Septic Tank Effluent	BMP Demo.
Gateway Region Environment – Education Network (GRE-EN)	Regional - Education
Fleming Creek Watershed Education Project	Watershed -Education
On-site Constructed Wetland Demonstration	BMP Demo.
Ameliorative Designs to Improve the Efficiency of Constructed Wetlands Treating High Metal Load Acid Mine Drainage in the Rock Creek Watershed	BMP Demo.
Regional Agri-Marketing for the Kentucky Agriculture Water Quality Act	Regional - Education
Producer Workbook – Kentucky Agriculture Water Quality Act Implementation	Statewide – Education & Tech. Transfer

**FFY 1992 Section 319(h) Nonpoint Source Implementation Grant - \$ 870,727 (Federal Funds)**

<b>PROJECT TITLE</b>	<b>PROJECT TYPE</b>
Conduct Water Quality Monitoring at Demonstration Farms Within the Mammoth Cave Water Quality Project	Assessment Monitoring
Conduct Water Quality Monitoring in the Upper Salt River/Taylorsville Reservoir and Fleming Creek Watershed	Watershed On-site WW
Conduct Post-BMP Monitoring for the FY 1992 USDA Demonstration, Hydrologic Unit or Special Water Quality Project	Assessment Monitoring
Maintain NPS Personnel at the Division of Conservation	Staffing & Support
Maintain Water Resource Specialists at the Six Conservation Districts	Staffing & Support

Develop Agricultural Chemical Waste Management Handbook and Education Program	Statewide Education
Develop Pilot Project to Demonstrate Protection of Critical Karst Area Aquifer	BMP Demo
Provide Additional Technical Assistance to Landowners, Assist With Water Quality Monitoring in Taylorsville Lake/Upper Salt River Project	Technical Assistance
Continuation of Animal Waste Nutrient Management Program	Assessment Monitoring
Assessment of Constructed Wetlands for Animal Waste Treatment	Assessment Monitoring
Characterization and Quantification of Nonpoint Source Pollutants in a KARST Aquifer Underlying an Agricultural Region	Watershed – Agricultural
Conduct Research Demonstration and Education Programs on Agricultural BMPs	Statewide – Education
Assessment of Constructed Wetlands for Animal Waste Treatment in Upper Salt/Taylorsville Reservoir Watershed	Watershed – On-site WW
Conduct Water Quality Monitoring at Bear Creek Site	Assessment Monitoring
Revise BMP Manual for Surface Mining	Statewide – Education
Evaluation of Constructed Wetlands for On-site Wastewater Treatment	Assessment Monitoring
Evaluation of Constructed Wetlands for Treatment of Wastewater from Single Family Dwellings	Assessment Monitoring
Develop Nonpoint Source Local Education Initiative	Statewide – Education
Develop the American Cave and Karst Center Interpretive Program	Education
Continue GRE-EN Nonpoint Source Public Awareness Program	Regional - Education

**FFY 1993 Section 319(h) Nonpoint Source Implementation Grant - \$ 1,274,000 (Federal Funds)**

<b>PROJECT TYPE</b>	<b>PROJECT TYPE</b>
Maintain NPS Staff - Division of Water	Staffing & Support
Maintain NPS Staff – Division of Conservation	Staffing & Support
Nonpoint Source Assessment Training Project	Statewide Education
Farm and Homestead Environmental Impact Assessment Program	Statewide Ed./Tech. Assist.
The American Cave and Karst Interpretive Project	Education - Groundwater
Upper Salt River/Taylorsville Reservoir Watershed Project	Watershed Demo. - Agriculture
Assessment of Constructed Wetlands for Animal Waste Treatment	BMP Demo.
Mammoth Cave Demonstration Project	Watershed Demo. - Agriculture
Waterworks Spring Groundwater Project	Assessment - Groundwater
Big South Fork/Bear Creek Interstate Watershed Project	Watershed Demo. - Resource Extract.
Fleming Creek Watershed Project	Watershed Demo. - Agriculture
Limiting Off-Road Vehicles and Related Road Use in the Horselick Creek Watershed	Watershed - Recreation
Elkhorn Creek BMP Demonstration Project	BMP Demo.
Wayne County Dead Poultry/Litter Composting Project	BMP Demo

Western Kentucky Dead Poultry Composting Demonstration Project	BMP Demo.
Green River Education Initiative	Regional -Education

**FFY 1994 Section 319(h) Nonpoint Source Implementation Grant - \$ 1,972,186 (Federal Funds)**

PROJECT TITLE	PROJECT TYPE
Maintain NPS Staff - Division of Water	Staffing & Support
Maintain NPS Staff - Division of Conservation	Staffing & Support
Nonpoint Source Education, Training and Technical Assistance for Local Communities, Citizen Groups and Resource Agencies	Statewide – Education
Upper North Fork of the Kentucky River On-Site Wastewater Management Project	Watershed – Land Disposal
Triplett Creek Watershed Demonstration Project	Watershed – Land Disposal
The American Cave and Karst Center Interpretive Program	Education – Groundwater
Characterization and Quantification of Nonpoint Source Loads in a Karst Aquifer Underlying an Agricultural Region	Assessment Monitoring - Groundwater
Subsurface Leaching Potential of Animal Waste Holding Ponds as a Function of Soil Moisture and Compaction	BMP Demo.
Harrods Creek Community Education Project	Education
Kentucky Logger Education in Best Management Practices and NPS Pollution Control	Statewide – Ed. & Tech. Transfer
Environmental Education: Impacts of Harvesting Practices on Water Quality in Forested Ecosystems	BMP Demo.
Ameliorative Designs to Improve the Efficiency of Constructed Wetlands Treating High Metal Load Acid Mine Drainage in the Rock Creek Watershed	BMP Demo.
Agricultural Pesticide Handling and Application Technology Demonstration	BMP Demo.
Chemical Mixing Centers for Taylorsville Lake – Upper Salt River Hydrologic Unit Area	BMP Demo.
Mapping and Groundwater Tracing of Karst Features Draining a Major Transportation Corridor Crossing the Turnhole Spring/Echo River Groundwater Basin	Assessment Monitoring - Groundwater
The Importance of Wetlands, Cave Ecosystems (Karst Area), and Riparian Habitats in Reducing Nonpoint Source Pollution and Improving Water Quality	Statewide –Education
Maximum Daily and Annual Nutrient and Pesticide Loads from Turfgrass Management Areas	Watershed & Tech. Transfer

**FFY 1995 Section 319(h) Nonpoint Source Implementation Grant - \$ 2,619,255 (Federal Funds)**

PROJECT TITLE	PROJECT TYPE
Maintain NPS Staff - Division of Water	Staffing & Support
Maintain NPS Staff – Division of Conservation	Staffing & Support
KY*A*SYST Home and Farmstead Environmental Impact Assessment Program	Education & Tech. Assist.

Nonpoint Source Education, Training and Technical Assistance for Local Communities, Schools, Citizen Groups and Resource Agencies	Statewide -- Education
Equine Waste BMP Demonstration Project	BMP Demo.
Site-Specific Nutrient and Biosolids Management for Agricultural Lands	BMP Demo.
Developing Programs for Operation and Maintenance of On-Site Constructed Wetlands	BMP Demo.
An Evaluation of Best Management Practices Installed in the North Fork of Panther Creek Watershed Based on Triazine Levels and Suspended Sediment in Surface Waters	Watershed – Agriculture
Implementation and Demonstration of Best Management Practices for the Utilization of Poultry Litter in the Lower Green River Watershed	BMP Demo.
Demonstration and Monitoring of Constructed Wetlands for Animal Waste Management	BMP Demo.
Upper Salt River/Taylorsville Reservoir Watershed – Riparian Demonstration	BMP Demo
The Effects of Agricultural Best Management Practices on Groundwater Quality in the Mammoth Cave National Park Region	Watershed Demo. Agriculture
Land Acquisition/Easements for Elkhorn Creek	BMP Demo.
Blanton Forest Nature Preserve	BMP Demo.
Farming in Cave Country: A Mammoth Cave Water Quality Special Project	Education
Cave and Karst Ecosystem Exhibit: A Mammoth Cave Water Quality Special Project	Education

**FFY 1996 Section 319(h) Nonpoint Source Implementation Grant - \$ 1,469,445 (Federal Funds)**

<b>PROJECT TITLE</b>	<b>PROJECT TYPE</b>
Maintain NPS Staff - Division of Water	Staffing & Support
Maintain NPS Staff – Division of Conservation	Staffing & Support
AG-NET Media Promotion of the Kentucky Agriculture Water Quality Act	Statewide Education
The American Cave and Karst Center Intrepretive Program	Statewide Education
Community Education in Nonpoint Source Pollution	Statewide Education
Regional Construction Workshops	Statewide - Tech. Transfer
Expansion of Ambient Monitoring Program – Baseflow and Streamflow Partitioning	Assessment Monitoring
Expansion of Ambient Monitoring Program - Pesticide Monitoring of Surface Water Samples	Assessment Monitoring
Expansion of Ambient Monitoring Program - Stream Sediment Monitoring	Assessment Monitoring
Fish Tissue Contaminant Monitoring	Assessment Monitoring
Evaluation of Created Wetlands	Assessment Monitoring
Effects of Best Management Practices on Groundwater Quality in the Mammoth Cave National Park Region	Watershed Demo - Agriculture
Applied Fluvial Geomorphology	Tech. Transfer - Hydro/Habitat Modification
Assessment of NPS Impacts on Groundwater in the Salt River	Assessment Monitoring - Groundwater

**FFY 1997 Section 319(h) Nonpoint Source Implementation Grant - \$ 1,696,663 (Federal Funds)**

<b>PROJECT TITLE</b>	<b>PROJECT TYPE</b>
Maintain NPS Staff – Division of Water	Staffing & Support
Maintain NPS Staff – Division of Conservation	Staffing & Support
Continuation of Fish Tissue Contaminant Monitoring Project	Assessment Monitoring
Expansion of Ambient Biological Monitoring Program	Assessment Monitoring
Water Quality Assessment of Trophic Status of Eastern Kentucky Reservoirs	Assessment Monitoring
Water Quality Assessment of Lake Barkley and Selected Tributary Embayments	Assessment Monitoring
Expanded Groundwater Monitoring for Nonpoint Source Pollution Assessment in the Kentucky River Basin	Assessment Monitoring - Groundwater
Estill County (Wagersville-Barnes Mountain) Septic System Demonstration Project	Watershed – On-site W.W.
Fleming Creek Solutions	Watershed – Education
The Big Sandy Soil Erosion Abatement Project	Watershed – Resource Ext/Silviculture
The Horse Lick Creek BMP Project	Watershed - Recreation
Dairy Waste Utilization Management Tool Development and Demonstration	BMP Demo
Water We Doing With All That Water?	Statewide Education
Watersheds of the Bluegrass Lawn Chemical Education Campaign	Regional - Education
Identification and Prioritization of Karst Groundwater Basins in Kentucky for Targeting Resources for Nonpoint Source Pollution Prevention and Abatement	Assessment Monitoring - Groundwater
Herrington Lake—Dix River Watershed	Watershed - Agriculture
Nonpoint Source Education, Training and Technical Assistance for Local Communities, Schools, Citizen Groups and Resource Agencies	Statewide -Education
Slate Creek Watershed Demonstration Project	Watershed – On-site W.W.
Biological Monitoring Program Expansion: Salt River Basin	Assessment Monitoring
Expansion of Fecal Coliform Assessment in the Licking River Watershed	Assessment Monitoring

**FFY 1998 Section 319(h) Nonpoint Source Implementation Grant - \$ 1,796,000 (Federal Funds)**

<b>PROJECT TITLE</b>	<b>PROJECT TYPE</b>
Maintain NPS Staff - Division of Water	Staffing & Support
Base Flow and Overland Runoff Yields of Kentucky Streams	Assessment Monitoring
Assessment of Nonpoint Source Pollution Impacts on Groundwater in the Headwaters of the North Fork of the Kentucky River	Assessment Monitoring - Groundwater
Nonpoint Source Water Quality Monitoring Support	Assessment Monitoring
Wildcat Branch/Mt. Victory Abandoned Mine Reclamation	Watershed – Resource Extraction
Enhancing Nonpoint Source Education in Kentucky Schools	Statewide -Education
Nonpoint Source High Priority Watershed Council Development Project	Statewide – Education

East Fork Watershed Demonstration Project	Watershed - Mix (Ag/Silv/on-site)
A Look at the Salt River Watershed	Watershed -Education
Education and Best Management Practice Training for Timber Harvesting Operators, Forest and Natural Resources Professionals and Forest Owners in Kentucky	Statewide – Tech. Transfer
Demonstration of Retrofitting Urban Stormwater BMPs in the Hickman Creek Watershed for Water Quality Improvement	BMP Demo.
Mapping Karst Groundwater Basins as a Nonpoint Source Pollution Management Tool in the Inner Bluegrass	Assessment Monitoring - Groundwater
Learning to Live with Caves and Karst	Statewide -Education
Evaluation of On-site Wastewater Treatment Vertical Distance Separation Standards	BMP Demo.
Forestry: Land Owner Guide and Training	Statewide – Education & Tech. Transfer

**FFY 1999 Section 319(h) Nonpoint Source Implementation Grant - \$ 3,416,800 (Federal Funds)**

<b>PROJECT TITLE</b>	<b>PROJECT TYPE</b>
Maintain NPS Staff – Division of Water	Staffing & Support
Maintain NPS Staff – Division of Conservation	Staffing & Support
Expanded Groundwater Monitoring for Nonpoint Source Pollution Assessment of Watersheds in Kentucky River Basin Management Unit Three	Assessment Monitoring - Groundwater
Use of Toxicity Testing to Monitoring Sediments in the Upper and Lower Cumberland, Tennessee, and Mississippi	Assessment Monitoring
Expansion of Fecal Coliform Assessments in the Lower Cumberland/Tennessee/Mississippi River Watersheds	Assessment Monitoring
Evaluation of Existing Groundwater Quality Data in the Tennessee, Mississippi, Upper and Lower Cumberland, Tradewater, and Green River Basins	Assessment Monitoring
Biological Monitoring Program Expansion: Upper Cumberland River Basin	Assessment Monitoring
Stream Geomorphic Reference Reaches and Bankful Regional Curves	Assessment Monitoring
Biological Monitoring Program Expansion: Lower Cumberland and Tennessee River Basins	Assessment Monitoring
Obion Creek Corridor Restoration Demonstration Project	Watershed – Hydro/Habitat Modification
Stinking Creek Watershed NPS Water Pollution Prevention Education and Demonstration Project	BMP Demo. & Education
Slate/Hinkston Agricultural Demonstration Project	BMP Demo.
Addressing Agricultural Nonpoint Source Pollution and Water Quality in Franklin County	Technical Assistance
Nonpoint Source Education in the Salt River	Education
Green River BMP Project	BMP Demo.
Clean Water Action Plan (CWAP) Rock Creek Watershed	CWAP –Resource Extraction
Herrington Lake-Dix River Watershed	CWAP -Agriculture

Upper Cumberland River Basin	CWAP – On-site Wastewater
Development of A Total Maximum Daily Load	CWAP - Agriculture
Biological Baseline Conditions in the Little River Watershed	CWAP - Agriculture
Karst Watershed Boundary Delineation	CWAP - Agriculture
Little River Action Plan	CWAP - Agriculture
Fleming Creek Watershed	CWAP - Agriculture

Program/Project Summary: The Kentucky Nonpoint Source Pollution Control Program has funded a wide variety of projects that address the major NPS categories of concern including: agriculture, silviculture, urban, construction, resource extraction, land disposal (on-site wastewater), hydrological/habitat modification, and recreation (off-road vehicles). Projects have been implemented by a variety of organizations and institutions including Conservation Districts, state agencies, federal agencies, universities, nonprofit environmental organizations (American Cave Conservation Association, The Nature Conservancy, etc.), local health departments, Area Development Districts, Resource Conservation and Development Districts, and others. Several NPS pollution control projects involve collaborative partnerships with federal agencies:

- Mammoth Cave Demonstration Project (U.S. Department of Agriculture Natural Resources Conservation Service and U.S. Department of the Interior National Park Service),
- Big South Fork, Bear Creek Interstate Demonstration Project (U.S. Department of Interior National Park Service),
- Upper Salt River/Taylorsville Reservoir Demonstration Project (U.S. Department of Interior Geological Survey, U.S. Department of Agriculture Natural Resources Conservation Service, and U.S. Army Corps of Engineers).
- Rock Creek Acid Mine Drainage Project (US Department of Agriculture Forest Service, U.S. Department of Interior National Park Service, and U.S. Office of Surface Mining),
- Panther Creek Agricultural Project (U.S. Department of Agriculture Natural Resources Conservation Service), and
- Wildcat Branch Acid Mine Drainage Project (U.S. Department of Agriculture Forest Service).

Nonpoint source pollution control projects funded with Section 319(h) grants include statewide, regional, and watershed initiatives. These diverse initiatives seek to reduce NPS impacts and threats to streams, rivers, reservoirs, groundwater, and wetlands.

By reviewing the types of NPS projects and initiatives that have been funded over the years, the evolution and maturation of the Kentucky Nonpoint Source Pollution Control Program can be observed. During the early 1990s agricultural and silvicultural statewide education and technology transfer initiatives predominated. By the mid-1990s, Kentucky had shifted its focus to BMP demonstration projects. Examples of BMP demonstration projects funded during the mid-1990s include equine nutrient management, poultry litter/dead bird composting, and on-site wastewater constructed wetlands. Kentucky also expanded its scope to include new watershed remediation projects. These new watershed initiatives resulted in Kentucky expanding into other NPS categories such as straight pipes, abandoned mine lands (acid mine drainage), and recreational impacts (off-road vehicles). During the late 1990s, fewer BMP demonstrations were funded and more watershed remediation projects were initiated. Watershed projects funded in the late 1990s have avoided the pitfalls and lessons learned from earlier watershed projects. Watershed projects of the late-1990's are targeted to smaller geographic areas and are more holistic in nature. The opportunity to document reductions in NPS pollution has increased as these newer watershed projects have better monitoring strategies, more detailed Quality Assurance/Quality Control (QA/QC) Plans, more comprehensive BMP Implementation Plans, and more technical support from both the Divisions of Water and Conservation.

Changes in project composition and program direction did not occur by accident, but rather as the result of conscious changes at the Program level. From securing appropriate staff support to modifying the project selection process, Kentucky has redirected its program to align with national NPS goals and objectives.

Institutionalization: Several Section 319(h)-funded projects have become institutionalized as state or local programs. The Kentucky Master Logger Program, which provides logger education and training on BMPs, has recently been instituted as a state requirement under the Kentucky Forest Conservation Act (Chapter 4). The pesticide container collection program, funded in FFY 1991, has evolved into an on-going state Department of Agriculture program. Another example is the Upper North Fork Kentucky River Project, funded in FFY 1994. It was Kentucky's first straight pipe (non-existent on-site wastewater system) watershed project. While the 319(h) funds have been successfully applied and the project has

been “closed-out,” nonpoint source pollution control efforts continue. The initiative and perseverance of citizens and local officials have resulted in the formation of the Letcher County Water and Sewer District. The District is continuing to eliminate straight pipes and nonpoint source pollution through both point and nonpoint source solutions that include regulatory, non-regulatory, financial assistance and education. In yet another example, the American Cave Conservation Association has sought and secured alternative funding for operation and maintenance of the Cave and Karst Museum. The Museum continues to provide important groundwater and nonpoint source education to local citizens, students, and visitors. In addition to institutionalizing Section 319(h)-funded projects, many other programs and projects to control runoff pollution have been developed and implemented with little or no involvement from the Divisions of Water and Conservation and without Section 319(h) funding. The maturation of the Kentucky Nonpoint Source Pollution Control Program is evident within the Natural Resources and Environmental Protection Cabinet (i.e. Divisions of Water, Waste Management, Forestry, Conservation, etc.) and, more importantly, at the watershed level.

### **Program Highlights and Major Accomplishments**

Major accomplishments have occurred in both the regulatory and voluntary components of the Kentucky Nonpoint Source Pollution Control Program. The Kentucky Agriculture Water Quality Act (AWQA), enacted by the 1994 General Assembly, was an historic piece of legislation for Kentucky and for the agricultural industry of this state to continue efforts to address NPS pollution associated with agriculture and silviculture production (Chapter 4). The Act, and subsequent regulations, focus on pollution prevention of surface and groundwater resources and providing assistance to landowners in dealing with water quality problems. The act provides for a mechanism of enforceable BMPs for agriculture and silviculture activities, which are technology driven and contained in the state Agriculture Water Quality Plan (Appendix 6). The regulations establish a corrective action process and allow the landowner to seek technical assistance to address and correct the problem before punitive action is taken. The AWQA is not only a statewide regulatory program, it is also a watershed regulatory program. It recognizes the diversity of land use, geology, and water resources across the state. It also recognizes that one “tool box” of BMPs may not be sufficient to control all agricultural and silvicultural nonpoint source impacts across the state. Thus, the AWQA includes a mechanism for the identification of priority protection areas and the development of regional water quality plans that are a variance from the statewide Agriculture Water Quality Plan. The regional water quality plans may include additional or modified BMPs that are necessary in order to effectively control nonpoint source pollution and protect water quality. In addition

to the AWQA, Chapter 4 also presents other important regulatory programs including the Forest Conservation Act (enacted under the 1998 General Assembly) and stormwater permits.

Two critically important voluntary program accomplishments include the enactment and funding of the Kentucky Agricultural Cost-Share Program and development and implementation of the Kentucky Watershed Management Approach. The state-funded cost share program is presented in Chapter 6, and the Kentucky Watershed Management Framework is included in its entirety (Appendix 4).

Major program accomplishments are highlighted below:

- Revision and distribution of BMP manuals, including Kentucky Best Management Practices for Agriculture (KDOC/KDOW, 1993), Kentucky Forest Practice Guidelines for Water Quality Management (KDOF, 1992), Kentucky Coal Mining Practice Guidelines for Water Quality Management (KDOW/UK, 1996), and Kentucky Best Management Practices for Construction Activities (KDOC/DOW, 1994);
- Development and distribution of a BMP guide for turfgrass management (UK, 1999);
- Development and distribution of the NPS video and brochure “Everytime It Rains;”
- Coordination and integration of the NPS Assessment Report and priority NPS watersheds with 305(b) and 303(d) data;
- Implementation of a competitive selection process for Section 319(h) projects which includes agency, industry and citizen participation;
- Coordination of Section 319(h)-funded projects with other funding sources (local, state and federal);
- Institutionalization of NPS pollution control projects and programs;
- Development of an MOU with the U.S. Forest Service to coordinate BMP implementation and evaluation (largest public land holder in Kentucky);

- Establishment of a State Cost Share Program for Agriculture;
- Implementation of watershed demonstration projects in priority NPS watersheds;
- Enactment of legislation which addresses nonpoint source pollution control (Chapter 4);
- Increased knowledge and incorporation of physical stream processes (fluvial geomorphology) into both assessment and watershed remediation efforts; and
- Implementation of innovative education and outreach programs (mini-grant program to local groups, Cave and Karst Museum, AWQA radio campaign, etc.).

### **Significant NPS Categories and Subcategories**

The pollution control strategies in the original NPS Management Program (KDOW, 1989b) documents were presented by major NPS category: agriculture, silviculture, construction, urban runoff, resource extraction, and land disposal, etc. This type of category-by-category presentation does not meet our current needs as expressed in our vision statement and supported by our long- and short-term goals and objectives. All significant categories and subcategories that impair or threaten Kentucky's water resources are addressed in this document. The degree of attention to specific NPS categories and subcategories is a function of the degree of impairment attributed to each category. The information, below identifies the percent contribution of use support impairment by NPS category (KDOW, 1999c):

<b>Nonpoint Sources of Use Impairment – Rivers and Streams</b>		
<b>NPS Category</b>	<b>Miles</b>	<b>Percentage of Total Miles *</b>
Agriculture	984.30	20.4
Resource Extraction (includes both active and abandoned mine sites)	916.80	19.0
Improper Waste Disposal (including straight pipes)	590.0	12.2
Urban Runoff/Storm Sewers	450.60	9.4
Source Unknown	260.1	5.4
Hydromodification	128.2	2.7
Habitat Modification	115.3	2.4
Construction	67.6	1.4
Silviculture	56.1	1.2

<b>Nonpoint Sources of Use Impairment – Lakes</b>		
<b>NPS Category</b>	<b>Acres Affected</b>	<b>Percentage of Total Acres *</b>
Agriculture	5582	21
Resource Extraction (includes both active and abandoned mine sites)	2294	9
Land Disposal	1475	6
Natural Sources	1418	5
Other (Septic Tanks)	153	1

- The percentage is that fraction of the total (point and nonpoint source) stream miles and lakes acres impaired.

Agriculture, resource extraction and land disposal are the top three NPS categories identified as contributing to NPS pollution in the state. In terms of area, agriculture is a principal land use in Kentucky. Thus, it is not surprising that agriculture is also identified as contributing to more stream miles and lake acres of impairment than any other NPS category (KDOW, 1999c). Resource extraction activities, particularly coal mining, contribute to both point and nonpoint source pollution. Abating sediment runoff and acid mine drainage from early (pre-1977) mining efforts continues to challenge communities, agencies and universities, as solutions are often complex and costly. Land disposal impacts are predominately associated with straight pipes and failing septic systems. Bacterial contamination from failing and nonexistent household wastewater treatment systems is a major NPS concern that is increasingly receiving attention. (Chapter 5)

In addition to the Division of Water, two other agencies within the Department for Environmental Protection play important roles in addressing specific categories of NPS pollution - the Division for Air Quality and the Division of Waste Management. For example, controlling atmospheric emissions and atmospheric deposition are primarily functions of the Division for Air Quality. While atmospheric deposition has rarely been identified as threatening or impairing water resources in Kentucky, the state Division for Air Quality implements dynamic programs that reduce air emissions and thus reduce atmospheric deposition. The Division controls the amount of air pollution that may be released into the air by industry and other stationary sources through permitting requirements, inspections of facilities, and if violations of air quality regulations are found, enforcement actions.

Similarly, the Division of Waste Management is responsible for abating the majority of impacts and threats associated with the category “Land Disposal.” The Division of Waste Management is charged with protecting Kentucky’s land resources from pollution and degradation, which impact air, surface water, and groundwater quality. The Division administers several programs, including permitting, registration, technical assistance, community service, and public information and education, to manage solid waste, hazardous waste, underground storage tanks, and other areas of waste management.

For all major NPS categories and subcategories, pollution control efforts and initiatives are diverse: regulatory, watershed demonstration, BMP demonstration, technology transfer, education, and training. Chapters 4, 5, and 6 present more information on the types of strategies being employed to control the major sources and categories of NPS pollution.

### **Program Management**

Staff Support - Nonpoint Source Section: The Nonpoint Source Section, Water Quality Branch, Division of Water provide oversight of the Kentucky Nonpoint Source Pollution Control Program. The makeup of the Nonpoint Source Section has changed over the years:

<b>1990</b>	<b>1995</b>	<b>1999</b>
Supervisor	Supervisor	Supervisor
Multi-Agency/Education Coordinator	Multi-Agency/Education Coordinator	Technical Coordinator
Field Team Leader	Biologist	Aquatic Biologist
Field Team Leader	<u>(Position Eliminated)</u>	Aquatic Biologist
Secretary	Secretary	Secretary*
	Contract Manager	Contract Manager
	Contract Manager	Contract Manager
		Administrative Assistant
		Agricultural Liaison/Data Coordinator
		Education Coordinator
		On-site Wastewater Coordinator
		Biologist & QA/QC Specialist

## Contract Specialist\*

\* Interim Position - 8.5 month appointment

As the NPS Program has grown, important staff changes have occurred as well. Positions have evolved and changed in order to keep pace with program responsibilities and requirements. For example, the Field Team Leader positions (1988) have changed to aquatic biologist positions (1999), with a greater knowledge and understanding of aquatic ecosystems and aquatic taxonomy. Similarly, the Multi-Agency/Education Coordinator position (1988) an impossible “jack-of-all-trades” position, was abolished and replaced with four positions – Education Coordinator, Technical Coordinator, Agricultural Liaison /Data Coordinator, and On-site Wastewater Coordinator.

These personnel changes did not come easily. During the mid-1990’s, the Nonpoint Source Section lost one biologist position as a result of attrition and an agency-imposed personnel cap. Hiring constraints within the Division of Water prevented the Program from expanding and keeping pace with program requirements. Several of the NPS Section staff positions (particularly in the mid-1990’s) were filled through contractual agreements and projects with other agencies and institutions. These contractual positions were costly and required a great deal of time to negotiate and maintain. After many years of failed attempts to secure adequate staff to administer the rapidly growing NPS Program, the Division of Water succeeded. The NPS Section was approved in 1998 to establish and fill 5 new full-time merit staff positions (Two of the five positions converted contractual positions to state merit status, resulting in a net gain of three new staff positions for the Nonpoint Source Section). All new merit positions were filled by October 1999. In addition, the agency has approved interim staff support (8.5-month appointments) to assist the section with getting caught up with years of backlog. Appendix 7 provides information on NPS Section staff and how these positions are functionally grouped for more effective operation, coordination, and communication.

In addition to NPS Section staff support, the Division of Water has supported the establishment of two NPS staff positions for the eastern and western Division of Water Regional Field Offices. To that end, the Division of Water has established and filled an Environmental Inspector position for the eastern part of the state to provide technical assistance, inspections, complaint investigations, and regulatory enforcement. Because of increased logging in the eastern part of the state, this position focuses on forestry and logging issues. The NPS Environmental Inspector position for the western part of the state

is similar, but is focused primarily on agricultural and stream restoration issues. The western NPS Inspector position was recently established and filled.

Project Management and Oversight: Each Section 319(h) project has a single point-of-contact within the Division of Water. The NPS Contract Managers are designated the single point-of-contact for all Section 319(h)-funded projects. The single point-of-contact has been instituted to improve communication and coordination. It also ensures that NPS Contract Managers are kept current with project status including products, deliverables, successes and concerns.

NPS Contract Managers have a plethora of technical support personnel within the Divisions of Water and Conservation to assist with providing project oversight. In Kentucky, the Division of Conservation has been delegated responsibility for providing Section 319(h) project implementation leadership for agricultural and construction projects funded under Section 319(h). Thus, the Division of Water relies upon and defers to Division of Conservation staff to provide leadership, guidance and technical support for agricultural and construction projects funded with Section 319(h) Grants. Within the Division of Water, the majority of 319(h) projects are assigned to one of the following NPS Section staff members: On-Site Wastewater Coordinator, Education Coordinator, Technical Coordinator, and Agricultural Liaison/Data Coordinator. In addition to NPS Section staff, Division of Water staff in the Groundwater and Water Quality Branches assist with providing technical guidance and support for groundwater and assessment monitoring projects.

Technical support staff are responsible for reviewing and approving project deliverables (BMP Implementation Plans, maps, data, documents, brochures, etc.) and reports (quarterly progress reports, annual reports, final reports, close-out reports, etc.) Technical support staff provide one-on one assistance and guidance to project contractors and participate in project meetings, field days, demonstrations and other project activities.

Thus, each Section 319(h) project has both an administrative contact (NPS Contract Manager) and a technical contact to ensure timely project implementation and timely product and report review and approval [Note: For projects involving water quality monitoring, NPS Contract Managers coordinate with NPS Aquatic Biologists to provide QA/QC Plan technical assistance. NPS Aquatic Biologists are responsible for coordinating the review, comment, and approval of all QA/QC Plans associated with Section 319 (h) projects.]

Project and Program Reporting: A tremendous amount of reporting is required for the Kentucky Nonpoint Source Pollution Control Program: Quarterly Goals and Objectives, Section 319(h) Project Progress Reports, Grant Reporting and Tracking System (GRTS), Project Close-Out Reports, Project Final Reports, Grant Close-Out Reports, Annual Reports, Grantee Performance Reports, Financial Status Reports, and other EPA and agency required reports. This discussion will focus on EPA-required reports and the staff and processes which support their timely completion and submittal.

The **Grant Tracking and Reporting System** (GRTS) database is an EPA required electronic tracking and reporting system that has been through several evolutionary changes. A Lotus Notes© Based system, it has only recently been accessible and used in Kentucky. Evaluation of the database is underway to determine its effectiveness in providing Kentucky with adequate grant and project management and tracking. Kentucky strives to utilize this database and has shown demonstrable progress in entering grant-and project-level information into the required fields. Optional fields that will assist Kentucky in tracking and managing Section 319(h) grants and projects are currently being populated. The NPS Section established and filled an interim staff position (Grant Reporting Specialist) in late 1998 to provide GRTS data entry and management. The backlog of data entry for the required fields has been entered. It is important to note that NPS Section staff are (1) still learning how to effectively utilize the GRTS database and (2) encountering areas of concern. For example, we have encountered problems with importing data and running reports. We hope to resolve this issue by contacting Tetra-Tech and EPA representatives to assist Kentucky with understanding the mechanics of the GRTS system. Other issues and areas of concern involve inconsistency of data fields and the need to establish common linkages between GRTS and 305(b). Kentucky will continue to pursue resolving GRTS and 305(b) consistency issues so that we will have relational databases that can be linked and used for more effective environmental management and reporting. Kentucky is utilizing GRTS to submit grantee performance reports pursuant to 40 CFR 31.40(b)(1).

“Section 319(h)(11) of the CWA requires States to report annually on their progress in meeting milestones, and to report available information on reductions of nonpoint source pollutant loadings and on improvements to water quality resulting from implementation of nonpoint source management programs” (EPA, 1996). Kentucky is committed to meeting this reporting requirement through timely development and submittal of an **Annual Report**. Regretfully, over the past few years, staff constraints have resulted in delinquent Annual Report submittals. The recent expansion within the NPS Section will

enable Kentucky to again meet this important reporting requirement. The recently established and filled (January 1999) Administrative Assistant position, with interim staff support, will provide the staff assistance needed to ensure that Kentucky meets its Annual Report requirement.

To ensure that all Section 319(h) project contractors understand and commit to providing information for the Annual Report, this reporting requirement is addressed in the legal contract (Appendix 2).

Additionally, it is important to note that the annual Kentucky Nonpoint Source Conference helps to fulfill part of the Annual Report requirement. Through the conference, Section 319(h) project managers are required to report on the status of their projects. Conference abstracts are bound into a “conference proceedings” document and attached to the Annual Report as supplemental and supporting project-level documentation. Where applicable, projects that are achieving reductions in nonpoint source loadings or documenting improvements in water quality have been singled out and appropriately referenced. The Kentucky Nonpoint Source Conference abstracts will continue to be used as a supplement attachment to the Annual Report. (Appendix 8).

EPA requires states to formally close-out expired Section 319(h) grants by developing and submitting a **Grant Close-Out Report** subject to EPA review and approval. The Grant Close-Out Report includes all of the individual **Project Close-Out Reports** and **Final Reports** associated with each project workplan. To ensure that all products and deliverables are received and all required reports are completed, final invoices are neither approved nor processed for payment until the project Close-Out and Final Reports have been received, reviewed and approved by the Division of Water. Kentucky’s Guidelines for Developing a Competitive Nonpoint Source Project include a “boiler-plate” Memorandum of Agreement that describes all contractor-reporting requirements (Appendix 2). Grant Close-Out Reports are prepared by NPS Contract Managers at the end of the grant period; The Grant Close-Out Report includes grant fiscal information and all individual project Close-Out and Final Reports. Kentucky submits project Final and Close-out Reports to EPA Region IV staff for technical review and approval. While EPA cannot formally “close-out” the project until the entire grant is closed-out, it is critical to resolve or address any technical issues or concerns in a timely manner. Kentucky appreciates EPA Region IV’s support of early technical review and approval of individual 319 (h)-funded projects.

“40 CFR Section 31.41(b) requires grantees to submit **financial status reports** using Standard Form 269 or 269(a) to report the status of funds under each grant” (USEPA, 1996). Staff with the Natural Resources and Environmental Protection Cabinet’s Finance Branch in the Division of Administrative

Services complies with this reporting requirement. Finance Branch staff provide NPS Contract Managers with copies of the Section 319(h) grant Financial Status Reports.

Grant & Contract Administration: Contract Managers, within the Divisions of Water and Administrative Services, are responsible for ensuring effective fiscal management and administration. NPS contract managers provide grant administration, including, but not limited to, developing and submitting grant applications, reviewing grant conditions and making recommendations on grant acceptance, monitoring grant fiscal status, and developing and submitting Grant Close-Out Reports. In addition to Federal Financial Reports, the Division of Administrative Services Finance Branch also generates Financial Status Reports, that track grant-specific information concerning both 319(h) funds and non-federal match expenditures within each object class category. NPS Contract Managers maintain frequent communication with Finance Branch personnel concerning the Federal Financial Reports, the Financial Status Reports, and other Section 319(h) grant expenditure issues.

Kentucky has embarked on a program to modernize and streamline state government operations known as EMPOWER Kentucky. As one of many outcomes of EMPOWER Kentucky, the Management Administrative and Reporting System (MARS) Project has been underway since June 1996 and is a vital component of the Division of Administrative Services. MARS aims to streamline and reduce the cost of the Commonwealth's administrative processes, increase support for administrative workers and managers, and improve service to internal and external stakeholders including USEPA. MARS was launched to support redesigned processes and reengineering goals in administrative and financial management. MARS was implemented on July 1, 1999 and a clear set of improvements is already being realized. A few of the benefits include:

- replacement of many paper-based input processes with electronic workflow,
- establishment of electronic report distribution,
- improved accuracy, accessibility, and timeliness of management reporting and decision support, and
- streamlined financial and materials management processes for all branches of government.

NPS Contract Managers are responsible for Section 319 (h) contract administration. The basic functions of contract administration include the development and execution of legal contracts (Memoranda of Agreement), review and approval of invoices, and review and approval of Project Close-Out and Final Reports. Memoranda of Agreement (MOAs) are developed based on EPA approved workplans that are designed to support the goals and objectives of the Kentucky Nonpoint Source Pollution Control Program. MOAs contain the same level of specificity and detail as the approved workplans, including outputs, milestones, and reporting and record retention requirements (Appendix 2).

The task of grant and contract administration requires a great deal of coordination, communication, and management. Each grant and project is unique, requiring fiscal, administrative, and technical support and oversight. Through recent staff expansions and process restructuring, Kentucky has made tremendous progress toward institutionalizing nonpoint source pollution control and increasing customer service. Ironically, as Kentucky positioned itself to provide the necessary fiscal, administrative and technical support for implementing the Kentucky Nonpoint Source Pollution Control Program, we were unable and unprepared to absorb the work load associated with the FFY 1999 Incremental Grant (Clean Water Action Plan [CWAP] projects). Additional positions necessary to provide the administrative and technical support for the CWAP projects have been identified and included in the agency's budget for state budget years 2001-2002.

**SHORT-TERM OBJECTIVES AND  
PROGRAM MILESTONES**

Objectives/Milestones	Federal Fiscal Year (FFY)				
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**Objective 3. Provide adequate staff support to effectively implement Program.**

<b>a.</b> Maintain current staff support levels.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Secure and maintain additional staff support to implement Clean Water Action Plan initiatives.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Secure data consultant to assist with internal database design.	<b>2000</b>	<b>2001</b>			

**Objective 4. Provide adequate data management for effective program and project oversight.**

<b>a.</b> Secure EPA/Tetra-Tech support to improve GRTS utilization	<b>2000</b>	<b>2001</b>			
<b>b.</b> Continue to populate GRTS data fields.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Utilize GRTS reports to replace or supplement existing reporting requirements.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>d.</b> Seek national consistency with GRTS and 305(b) data fields.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>e.</b> Develop NPS database to improve tracking and data needs not met by GRTS or other agency database systems.	<b>2000</b>	<b>2001</b>			
<b>f.</b> Support state and national relational database efforts.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 5. Submit all state and EPA required reports in a timely manner.**

<b>a.</b> Continue to utilize GRTS for meeting grantee performance reports.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Submit Quarterly Goals and Objectives Report within 30 days.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Submit project Final & Close-Out Reports to EPA Region IV for technical review and comment.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>d.</b> Annual Report submitted to EPA by August 1 of each calendar year.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

<b>e.</b> Coordinate timely submittal of financial status reports and other required grant reports with Division of Administrative Services Finance Branch	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>f.</b> Submit Grant Close-Out Report within 3 months of grant expiration.		<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

## **CHAPTER 3**

### **ASSESSMENT & PRIORITIZATION**

This chapter provides information on both the assessment of NPS impacts and threats and the prioritization of watersheds in need of remedial action. Assessment procedures and prioritization processes are critically important to the overall success of the Kentucky Nonpoint Source Pollution Control Program. Under the Kentucky Watershed Approach umbrella, several agency activities have been coordinated and improved, including the assessment of NPS impacts/threats, prioritization of waterbodies, and targeting of watersheds. The Chapter begins with a discussion of past and current NPS Assessment Reports and is followed by a discussion of sources of data, NPS assessment monitoring needs, and past, current, and future prioritization and targeting procedures. The Chapter ends by listing the short-term program objectives and milestones (activities) relevant to the information presented in the chapter.

#### **NPS Assessment Reports - Background**

The quality and integrity of NPS assessment data in Kentucky has improved over time. The original Kentucky NPS Assessment Report (KDOW, 1989a) was based primarily on evaluated data from a statewide Nonpoint Source Pollution Survey. Subsequent updates (KDOW, 1992a) included monitored data, but continued to rely on evaluated sources of data to assess NPS impacts and threats. Kentucky recognized the need to provide a sound, scientifically based foundation for targeting NPS remediation efforts. Thus, monitored data replaced evaluated data as the basis for assessing NPS impacts and threats. To that end, the NPS Assessment Report was included as an attachment to Kentucky's Reports to Congress on Water Quality, also referred to as 305(b) Reports (KDOW, 1992b & KDOW, 1994).

The integration of the NPS Assessment Report and the 305(b) report was completed in 1996. Kentucky ceased to use the evaluated data and fully used the 305(b) data for assessing NPS impacts and threats. However, NPS Program partners and cooperators expressed a desire for more detailed water quality information to aid in the development of effective watershed remediation or restoration plans. The Division of Water then contracted with the University of Kentucky to repackage and present Kentucky's 305(b) and 303(d) information in the Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999).

## **NPS Assessment Report - Current**

The nonpoint source assessment data provides the necessary foundation for implementing effective NPS pollution control strategies. The Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999) establishes Kentucky's commitment to providing sound data for watershed protection and restoration. The report is a comprehensive document that identifies NPS impacts, threats, and priority watersheds (Appendix 5). The primary source of data for the report is from the 1998 Kentucky Report to Congress on Water Quality (i.e., 305(b) Report) (KDOW, 1999c). Selection criteria for waterbodies extracted from the 1998 305(b) databases for inclusion in the Kentucky Nonpoint Source Assessment Report were:

1. Waterbody assessed as having NPS impacts or threats, and either
2. Waterbody assessed as not fully supporting one or more designated beneficial uses, or
3. Waterbody assessed as having a threat to one or more designated beneficial uses (KDOW/UK, 1999).

The Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999) is included as Appendix 5.

## **Sources of Data**

The Division of Water, Water Quality Branch, has primary responsibility for assessing water quality and NPS impacts and threats. Kentucky utilizes an array of monitoring programs to assess the quality of rivers, streams, reservoirs, wetlands, and groundwater resources (KDOW, 1999c). A brief description of some of these monitoring programs as described in the 1998 305(b) Report (KDOW, 1999c):

- Ambient Water Quality Monitoring Program: Forty-four primary ambient water quality monitoring stations, characterizing approximately 1,432 stream miles, were monitored during the 1998 305(b) reporting period. More than 100 ambient monitoring sites were maintained for groundwater, and 13 ambient sites were sampled for eutrophication trends in lakes. Water quality data from nine stations operated by federal and other state agencies were used to supplement Division of Water data.
- Ambient Biological Monitoring Program: Kentucky's biological monitoring program consisted of a network of 49 stations located in 12 river basins. Algal, fish, and macroinvertebrate samples were collected and analyzed.

- Reference Reach Program: This program defines the physical, chemical, and biological potentials for the streams of a particular ecoregion, and allows a comparison with other streams in the same region. Data on chemical water quality, sediment quality, fish tissue residue, habitat condition, and biotic conditions were collected.
- Intensive Surveys: Twenty-nine intensive surveys were conducted on 178.1 miles of streams to evaluate point source and nonpoint source agricultural pollution, baseline water quality, and the status of water quality in streams assessed previously.
- Other Sources of Data: Other sources of data used in the 1998 305(b) report included permitted discharge monitoring reports, Kentucky Department for Fish and Wildlife Resources, Louisville Metropolitan Sewer District, U.S. Geological Survey, Kentucky State Nature Preserves Commission, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. Forest Service, Ohio River Valley Water Sanitation Commission, and Lexington-Fayette Urban County Government.

### **Watershed Management Approach Framework**

Under the Watershed Management Approach Framework, the Water Quality Branch provided leadership in further coordinating and integrating these monitoring efforts in order to holistically assess Kentucky's major river basins during a five-year cycle (KDOW, 1997b). In order to maximize data collection efforts and to minimize data gaps, river basin assessment work is targeted to 4<sup>th</sup> order streams. The result of coordinating and integrating data collection efforts has been a tremendous increase in the number of stations and water quality data being collected within each River Basin Management Unit. The Kentucky River Basin Management Unit was the first to undergo this process; the data generated from this effort is being finalized and has not yet been reported. Subsequent 305(b) reports and NPS Assessment Reports will include the river basin data generated under the Watershed Management Approach Framework.

### **Assessment Monitoring Priorities**

States are permitted to utilize up to 20 percent of their Section 319(h) grants to update and refine their NPS Management Program or NPS Assessment Report (USEPA, 1996). NPS assessment-monitoring needs are extensive (e.g., BMP targeting, use-support investigations, TMDL development, source drinking water assessments, and groundwater, wetlands, and lake assessments, etc.) and far exceed Section 319(h) funding capabilities. Thus, conflicts concerning the allocation of the assessment-

monitoring funds are inevitable. The following information describes Kentucky's NPS assessment-monitoring priorities and objectives.

Kentucky will support and provide Section 319(h) grant funds for NPS assessment-monitoring projects that have been designed to achieve one or more of the following objectives:

- Produce data which will be used to guide the development of a specific watershed protection or remediation plan;
- Target NPS pollution control activities;
- Demonstrate changes in water quality as a result of NPS pollution control efforts;
- Produce baseline data necessary to support stream channel restoration and stream bank stability projects and initiatives.

Assessment-monitoring projects funded by Section 319(h) grants will adhere to state grant guidelines, QA/QC Plan guidelines, and grant schedules and deadlines (Chapter 6). Data collection and analyses will be scientifically valid and will be submitted in a format that is compatible with Division of Water databases. Only those funds not used for updating the Kentucky NPS Management Program will be made available for updating and refining the NPS Assessment Report. Of the 20 percent that may be available for assessment-monitoring projects 45 percent will be earmarked for expanding ambient monitoring programs or TMDL development, 30 percent will be used to support NPS Section biological staff and 25 percent will be used to support high priority NPS assessment monitoring needs as directed by the NPS Section.

### **Expansion of Ambient Monitoring and/or TMDL Development**

Kentucky will continue to support assessment-monitoring initiatives that build on existing data to further refine and define NPS impacts and threats. Under the Watershed Management Approach Framework, ambient data collection efforts that assess the physical, chemical, and/or biological integrity of Kentucky's surface and groundwater will continue to be supported. In recent years, use of Section 319(h) funds to expand biological and bacteriological monitoring programs have expanded Kentucky's coverage and assessment of NPS impacts and threats within specific river basin management units.

Kentucky will also continue to support TMDL development for selected NPS impacted or threatened waterbodies. Ensuring that TMDLs provide the necessary data to implement and target effective NPS pollution control activities is essential to abating NPS pollution and improving water quality.

Kentucky recognizes that assessment-monitoring needs may shift from year to year as a result of differences in river basin management units or changing agency priorities. To ensure that Section 319(h) funded NPS assessment monitoring projects meet national and state program objectives, NPS Section staff will conduct an internal review and evaluation of all proposals. If more funds are requested than are available, NPS Section staff will present their evaluations and rankings to the Division of Water Director's Office. The Director's Office will assist NPS Section staff with objectively selecting NPS assessment monitoring projects that meet national and state objectives and priorities.

### **NPS Section Biological Staff Support**

Section 319(h) NPS assessment-monitoring funds will also be used to provide biological staff support for the NPS Section. NPS Section data collection efforts are also changing under the Watershed Management Approach Framework. The following strategy has been developed to supplement and build upon existing data collection efforts.

The NPS Section Biologists will meet with the River Basin Coordinators and use data from previous monitoring in the River Basin Management Units. Utilizing the prioritization procedures and targeting processes defined by the Watershed Management Approach Framework, the data will be used to determine the 4<sup>th</sup> order watersheds that were impacted by nonpoint source pollution, and the degree of these impacts (KDOW, 1999b).

With this information, a list of priority 4<sup>th</sup> order watersheds for NPS assessment and monitoring will be generated. Within a select number of these larger watersheds, smaller tributary watersheds will be monitored by NPS biologists or contractors for the various nonpoint source impacts thought to be occurring (e.g., straight pipes, agriculture, silviculture, etc.). The reasoning behind the assessment of smaller watersheds is that it has proven difficult to show demonstrable changes in water quality in 4<sup>th</sup> order watersheds. Smaller problem watersheds within these larger ones need to be identified in order to establish priorities for Section 319(h) grant funding. This type of monitoring will also enable us to refine the list of NPS impacted waterbodies (add or remove waterbodies, etc.) and to localize the pollution impacts occurring in those 4<sup>th</sup> order watersheds.

In addition to the sub-watershed monitoring described above, NPS biologists will initiate and assist with other aquatic biological investigations that support the goals of the Division of Water, Water Quality Branch, and NPS Section. For example, NPS biologists will assist and support other Water Quality Branch aquatic biologists by conducting macroinvertebrate sampling for metric development in eastern Kentucky headwater streams. NPS aquatic biologists will also provide monitoring support for selected Section 319(h) funded watershed initiatives, such as the Obion Creek Restoration Demonstration Project.

NPS and DOW standard operating procedures and Quality Assurance Quality Control guidelines have been developed for use by agency staff and contractors (KDOW, 1995).

### **High Priority NPS Assessment Needs**

Section 319(h) NPS assessment-monitoring funds will also be used to support other high priority NPS assessment needs identified by the NPS Section. One of the highest priorities within the NPS Program is the development of reliable stream bankfull characteristic curves for the design and assessment of natural channels.

Physical stream habitat, stream stability, bank erosion, and total sediment loads are affected by the physical characteristics or stream channel networks of a watershed. Land-use practices in Kentucky such as land development, livestock grazing, land clearing, channel relocation, and modifications for flood protection, roadway construction, and mining tend to increase stream peak flow rates, disturb riparian vegetation, and alter stream channel characteristics. The response of many streams to disturbance can be excessive production of sediments through channel incision followed by severe bank erosion. In many cases, channels have incised themselves into bedrock and continue to widen through bank erosion for decades after disturbances have occurred. The direct disturbances to streams and the associated indirect erosion that continues for long periods can severely degrade stream habitat upstream, downstream, and at the disturbed section of the stream (Leopold, *et al.*, 1964; Leopold, 1994; Rosgen, 1996; FISRWG, 1998). Physical alterations of stream channels are a significant source of stream habitat degradation and a major source of nonpoint source pollution in watersheds in Kentucky.

Stream restoration methods and bioengineering techniques have been developed to improve stream habitat, reduce bank erosion, and reduce sediment loads through physical alteration of disturbed stream channels. Stream restoration and the restoration design requires that stream physical characteristics be compared to data from reference reach streams in the same climatic and geophysical regions. Regional

curves that provide geomorphologic characteristics of reference streams are the basis for evaluation and restoration design (Leopold *et al.*, 1964; Leopold, 1994; Rosgen, 1996). At present, stream restoration in Kentucky is being conducted without the benefit of regional curves for geomorphic parameters.

The development of reliable stream bankfull characteristic curves for the design and assessment of natural channels is a high priority within the NPS Section. The curves are a critical component for assessment of stream physical degradation, for assessment of stream morphology and for design of relocated and restored stream channels. Methods have been developed to restore stream channels to stable configurations that support high quality aquatic habitat and reduce nonpoint source pollution. Effective restoration of degraded stream channels reduces bank erosion, minimizes siltation, and provides a stable linkage between riparian zone and stream channel (Rosgen, 1996; FISRWG, 1998).

A key component for design of natural channels is the determination of “bankfull” characteristics of the main channel. In addition, bankfull characteristics are essential for stream classification. The primary sources of the bankfull characteristics are developed in various physiographic regions throughout the United States; however, because stream characteristics are highly dependent on local geological and climatic conditions, the stream characteristics may vary widely. Regional curves for bankfull stream characteristics for specific physiographic regions are needed for reliable natural channel design and assessment. The NPS Section supports the development of bankfull characteristic curves and the collections of basic fluvial geomorphological data.

The development of reliable bankfull characteristic curves will enable Kentucky to move forward with stream classifications and other stream restoration initiatives.

### **Unified Watershed Assessment**

The President’s Clean Water Action Plan was released in February 1998 with the broad vision of watershed restoration and protection through cooperative approaches. State, federal, and local governments and interested citizens were asked to (1) identify watersheds with the most critical water quality problems and (2) work together to focus resources and implement effective strategies to solve these problems. The primary goals of the initiative were to target resources to waters that are in non-attainment of national clean water or natural resource goals.

The Kentucky Division of Water and the Natural Resources Conservation Service (NRCS) were the lead agencies in developing a Unified Watershed Assessment for Kentucky. Following public review and comment, Kentucky submitted its Unified Watershed Assessment to EPA during September 1998. The submittal to EPA detailed the development of the Unified Watershed Assessment (public participation, criteria, and restoration of priority watersheds). Kentucky has received FFY 1999 Section 319(h) Grant funds for implementing restoration strategies in these priority watersheds (Chapter 5).

### **Current Prioritization Procedures**

Assessing NPS impacts and threats sets the foundation for prioritizing watersheds for NPS pollution control. Like other program areas, prioritization and targeting of watersheds has evolved. During the early 1990s, Kentucky developed a numeric algorithm that prioritized and ranked NPS watersheds for protection or remediation. The numeric algorithm utilized criteria (degree of use impairment, data integrity, geographical balance, etc) and weights for ranking all NPS impaired or threatened waterbodies.

As the NPS Assessment Report became integrated with 305(b), 303(d), and Total Maximum Daily Loads (TMDLs), the numeric algorithm was adjusted and, eventually, abandoned. As described below, Kentucky's current NPS watershed prioritization process fully supports 303(d) and TMDL priorities.

Priority NPS watersheds include groundwater, wetlands, rivers, streams and lakes impacted by nonpoint source pollution. They also include high quality waters threatened by NPS pollution because of changing land uses. The Kentucky NPS Pollution Control Program seeks (1) to restore watersheds that have been altered or degraded and (2) to protect watersheds from future impacts. Section 319(h) funding priority is provided to projects and programs which focus on NPS pollution control activities that address priority pollutants of concern in these watersheds (KDOW, 1998a). While the majority of Kentucky's water quality data pertain to streams, rivers, and lakes, groundwater and wetlands are given equal consideration as important water resources that the Kentucky NPS Pollution Control Program must protect or remediate.

NPS Priority 1 waterbodies are those with ongoing TMDL projects and those listed as first priority for TMDL development (i.e., 303(d) first priority). NPS Priority 2 waterbodies are those listed as second priority for TMDL development (i.e., 303(d) second priority). Additionally, NPS priority watershed status are designated to waterbodies listed as High Quality Water or Kentucky Outstanding Resource Water and have a documented, demonstrable NPS threat. The documents [Guidelines for Developing a](#)

Competitive Nonpoint Source Project: FFY 2000 Section 319(h) Nonpoint Source Grant (KDOW, 1998a) and Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999) describe and list Kentucky's NPS priority watersheds (Appendices 2 & 5). Kentucky progressively addresses these NPS impacted/threatened waterbodies through the NPS competitive ranking and selection process for Section 319(h) funded projects and, soon, through the Kentucky Watershed Management Approach (Appendices 3 & 4).

### **Future Prioritization and Targeting**

Under contract with the University of Kentucky, a sophisticated framework and process for prioritizing impaired and threatened watersheds for targeted remedial action has been developed (Appendix 9). The Kentucky Watershed Priority Formula: Application Guidelines and Data Requirements (KDOW, 1999b) comprehensively describes the proposed approach, framework, watershed priority formula, watershed targeting, and classification matrix that will be used under the Watershed Management Approach Framework. The document is attached in its entirety as Appendix 9. The summary information presented below is reprinted from the document KDOW, 1999b).

The Kentucky Watershed Priority Formula: Application Guidelines and Data Requirements (KDOW, 1999b) presents a methodology for ranking and selecting individual 11-digit HUCs for subsequent development of detailed watershed management plans as part of the Kentucky Watershed Management Framework. The proposed methodology consists of two phases: 1) ranking and 2) targeting. The prioritization phase is used to rank 11-digit HUCs on the basis of existing special protection areas and the existence or potential existence of designated use impairment. The prioritization is accomplished using a priority watershed formula developed especially for this purpose. The formula is intended to serve as an objective tool for compiling environmental indicators to rank watersheds as high, medium, or low, and for use in deciding how to allocate resource to address both protection and restoration goals. The targeting phase involves determining the feasibility of a particular project. Targeting criteria include:

- Public support,
- Manageability,
- Data availability,
- Program specific funding,
- Program constraints, and
- Watershed goals.

By cross-referencing the prioritization score and the targeting score for all watersheds a classification matrix may be constructed which can serve to provide guidance for the type of management activity appropriate for each individual watershed (KDOW, 1999b).

Watershed Priority Formula: In order to prioritize the 11-digit HUCs for subsequent management plan development, an objective ranking methodology is employed. A priority watershed formula serves as an objective tool of compiling environmental indicators in order to rank watersheds, based on restoration or protection factors. As such, the formula should achieve the following objectives (KDOW, 1999b):

1. Summarize existing environmental information (indicators) on watersheds within a large-scale basin for comparative purposes;
2. Highlight information gaps to help guide future data collection efforts;
3. Educate the public about the importance of the resources and the information needed for decision making; and
4. Serve as an incentive for further information gathering by governmental and non-governmental stakeholders.

The watershed formula is intended to summarize technical information and serve as a basis for deciding how to allocate resources to address two separate goals: 1) protection and 2) restoration.

Watershed Targeting: After the watersheds have been prioritized using the watershed formula, the next step will be to determine how to allocate resources to address the associated protection or restoration goals. Within each basin management unit, programs are expected to begin at the top of the watershed list and evaluate where to direct their resources based on the following types of criteria:

1. Public Support. This criteria involves assessing factors such as the degree of public interest, availability of local funding, and the degree of support by other resource agencies that are integral to implementation.
2. Manageability. Evaluating manageability could include such factors as feasibility of mitigating water quality problems or protecting the

watershed, magnitude of cost, size of watershed, time necessary to correct problems, opportunity for success, amenability to available tools and controls, etc.

3. Data Availability. Data may be sufficient to assess the watershed, but insufficient to quantify the problem for management purposes. If the problem cannot be quantified satisfactorily, then a data gap would be identified to be addressed in the future.
4. Program-Specific Funding. Managers should consider such elements as project funding eligibility (i.e., constraints regarding use of resources) and availability of funds for specific purposes.
5. Program Constraints. Personnel and operation resources limit program actions.
6. Goals. Resource allocations are constrained by federal, state, agency or basin management goals. Thus, a fixed amount of resources may need to be allocated to a variety of watershed types or for different program-specific areas.

Classification Matrix: By cross-referencing the prioritization score and the targeting score for all watersheds, a classification matrix may be constructed which can serve to provide guidance for the type of management activity appropriate for each individual watershed (KDOW, 1999b).

Kentucky will (1) continue to use the current prioritization process, (2) support the Watershed Management Approach Framework prioritization and targeting procedures, and (3) integrate into the Watershed Management Approach Framework cycle by 2005.

### **Measures of Success**

Kentucky uses both environmental and functional measures of success to review and evaluate its nonpoint source management program. For Section 319(h)-funded projects, measures of success are required for each project. For watershed projects, water quality monitoring is required in order to measure the success of the project in terms of achieving compliance with state water quality standards. In accordance with the Kentucky Department for Environmental Protection's Quality Assurance Plan, individual QA/QC Plans are required for all major projects that involve environmental monitoring (KDEP, 1992). These QA/QC Plans are required to assure that all environmental data generated by, or

on behalf of, our agency are technically sound, of known quality, and are thoroughly documented. QA/QC Plans are required for all Section 319(h) projects that involve water quality monitoring. QA/QC guidelines and requirements are presented in our grant guidance manual (Appendix 2, Chapter 7). All Section 319(h)-funded projects must report on both measures of success and lessons learned as part of their required Final Report, which is subject to EPA review and approval.

In addition, under the Watershed Management Approach Framework, each river basin management unit will be monitored and assessed every five years. Thus, changes in water quality on 4<sup>th</sup> order streams will be monitored and evaluated on a five-year cycle. Program success will be documented by improving water quality and de-listing 303(d) waterbodies (Chapter 1).

### **Public Participation**

The Kentucky Division of Water encourages public input and participation in the preparation of water quality reports. Agencies, organization, and citizens are encouraged to submit water quality data to the Division of Water for evaluation and consideration for inclusion in its 305(b) reports. Kentucky provides for formal public participation in its 303(d) reports. For example, the 303(d) List of Waters for Kentucky (KDOW, 1998b) provided public participation via a review and comment period which was advertised through a press release, individual letters to more than 150 recipients, and the agency's internet site. Hard copies of the report were also provided to the KWICC. In addition, Kentucky submitted its draft Unified Watershed Assessment for public review and comment prior to submittal to the U.S. Environmental Protection Agency. Public participation is also a critical component of the Watershed Management Approach program (Appendix 4). Kentucky will continue to encourage citizens and agencies to provide NPS assessment data for inclusion in decision making, to participate in prioritization and targeting procedures, and to provide an opportunity for public review and comment on agency plans and reports.

## SHORT-TERM OBJECTIVES AND PROGRAM MILESTONES

Objectives/Milestones	Federal Fiscal Year (FFY)				
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**Objective 6. Provide current, scientifically valid NPS assessment data to Program cooperators and partners.**

<b>a.</b> Coordinate and integrate data collection efforts under the Watershed Management Approach Framework.	<b>2000</b>	<b>2001</b>	<b>2002</b>		
<b>b.</b> Expand ambient monitoring programs and/or TMDL development efforts to increase the assessment of NPS impacts/threats.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Conduct sub-watershed monitoring in NPS priority watersheds for targeting NPS pollution control activities.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	
<b>d.</b> Develop stream bankfull regional curves and/or stream classifications.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>e.</b> Update the Kentucky NPS Assessment Report as new 305(b) data is reported.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>f.</b> Disseminate NPS assessment data to program cooperators and partners to use in developing watershed remediation plans.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 7. Provide a prioritized list of NPS impacted and threatened watersheds to Program cooperators and partners.**

<b>a.</b> Continue to utilize 303(d)/TMDL priorities in identifying NPS priorities.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Support Watershed Management Approach Framework prioritization and targeting procedures.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Integrate current NPS prioritization process into Watershed Management Approach Framework prioritization procedures.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

<b>d.</b> Disseminate NPS priority watershed information to Program cooperators and partners.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>e.</b> Encourage Program cooperators and partners to target NPS pollution control activities in NPS priority watersheds.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 8. Document changes in water quality as a result of NPS pollution control activities. (Also, see Objective 2).**

<b>a.</b> Require water quality monitoring for all Section 319(h)-funded watershed demonstration projects.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Coordinate the review, comment, and approval of Quality Assurance/Quality Control Plans for Section 319(h) projects.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Evaluate water quality data within each River Basin Management Unit every five years to assess the success of NPS pollution control efforts.					<b>2004</b>

**Objective 9. Provide opportunities for public input and comment on NPS assessment data and prioritization & targeting procedures.**

<b>a.</b> Review and, as appropriate, include water quality data collected by other agencies, organizations, and citizens in identifying NPS impacts and threats.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Provide an opportunity for public review and comment on 303(d) reports.			<b>2002</b>		<b>2004</b>
<b>c.</b> Encourage agency, organization, and citizen participation in assessing, prioritizing, and targeting activities under the Kentucky Watershed Management Approach.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

## **CHAPTER 4**

### **STATE REGULATORY PROGRAMS**

This chapter describes the major regulatory programs in Kentucky that affect nonpoint source pollution. Several of these programs reside in other agencies and are coordinated with the Division of Water through memoranda of understanding, interagency committees, and regulatory structures. Short-term objectives and program milestones for programs that the Division of Water manages or coordinates with are listed at the end of this chapter.

#### **Kentucky Agriculture Water Quality Act: KRS 224:71.100 to 71.140**

This Act was passed by the Kentucky General Assembly in 1994. Its goal was to protect Kentucky's soil and water resources by promoting the implementation of best management practices in farming and silviculture activities.

The Act created an Agriculture Water Quality Authority that, among other duties, evaluates the adoption and effectiveness of best management practices for agriculture operations, including silviculture, and develops a statewide Kentucky Agriculture Water Quality Plan that assures adequate environmental protection for surface and groundwater (KDOC, 1996). Currently the Authority is made up of one representative from the following groups or agencies: Kentucky Association of Conservation Districts; Kentucky Department of Agriculture; University of Kentucky College of Agriculture Cooperative Extension Service; Kentucky Farm Bureau Federation; Kentucky Division of Conservation; Kentucky Division of Forestry; Kentucky Geological Survey; the Sierra Club; Kentucky Division of Water; Kentucky Department of Health, U.S. Natural Resources Conservation Service; U.S. Consolidated Farm Services Agency; and three members-at-large representing agricultural operations. The plan serves as a guide for individual landowners to develop individual water quality plans. It consists of BMPs designed to prevent pollution from crop production, tree harvesting, livestock production, on-farm storage and handling of pesticides and fertilizer, and farmstead activities such as solid waste and household wastewater disposal and petroleum storage. The plan required approval by the Division of Water, and was approved in October 1996. Individual farmers with 10 or more contiguous acres are required to develop and implement an Individual Plan by October 23, 2001. Farming activities that require a Clean Water Act Section 404 permit issued by the U.S. Army Corps of Engineers (COE) such as stream crossings, removal of sand and gravel, bank stabilization, and stream and wetland filling and excavation

are required to follow BMPs in the statewide plan immediately, unless a state-issued water quality certification requires more extensive practices. A copy of the plan is included in Appendix 6.

An important duty of the Agriculture Water Quality Authority is to revise the statewide plan when necessary. This may occur when more effective BMPs are developed or new activities occur in the state that require more specific BMPs. The first changes were completed in May 1999 and resulted in the incorporation of a revised nutrient management and livestock BMP, and a new poultry facility siting and land application of on-farm-generated waste by-products BMP to address the establishment of larger scale livestock and poultry operations in the state.

A regional water quality plan must be developed in designated water priority protection regions where the Division of Water documents that agriculture is contributing to water pollution. The regional plan is developed by the Agriculture Water Quality Authority working with the Soil and Water Conservation Commission and conservative districts. The plan may contain revisions of the statewide plan that focus on more effective BMPs to control the type of pollution that is causing water quality problems. Landowners engaged in agricultural operations are required to implement the regional plan.

The Act has compliance and enforcement provisions. It has a “bad actor” clause that makes a landowner ineligible for state cost-share programs and subject to civil penalties, if the person has no farm plan or if the plan does not conform to the statewide or regional plan, and if there is a failure to undertake corrective measures to be in conformity.

### **The Forest Conservation Act: KRS 149.330 to 149.355**

The 1998 General Assembly passed the Forest Conservation Act. The Act promotes long-term timber production, economic opportunities for forest industries and tourism, and healthy, high quality forests. It relates to commercial timber harvesting practices and focuses on loggers and operators. The following activities are exempt from provisions in the Act:

- Cutting firewood or Christmas trees;
- Removing trees incidental to coal mining, farm purposes, or construction;
- Cutting trees in highway or utility corridors unless timber is sold;

- Cutting timber by an individual, non-industrial landowner on personal property if the landowner cuts the timber.

The new law requires that after July 15, 2000, no person shall conduct commercial timber harvesting operations within the Commonwealth unless there is a certified “master logger” on site who has completed required educational and training requirements including continuing education every three years. The University of Kentucky’s Department of Forestry conducts programs to certify master loggers.

The timber harvesting operations must use appropriate best management practices which are defined as effective practical, economical structural or nonstructural methods that prevent or reduce the movement of sediment, nutrients, pesticides, and other pollutants from the land to surface or groundwater, or that otherwise protect water quality from potential adverse effects of timber harvesting operations. Best management practices are to be defined by the Division of Forestry and approved by the Agriculture Water Quality Authority and are reviewed by a Forestry Best Management Practices Board, which was convened in July of 1999 and given one year to review the BMPs. The Board reviews the BMPs not more often than every five years.

Loggers and operators are given four opportunities to correct problems before penalties are assessed. There is a provision that an emergency order can be issued by The Natural Resources and Environmental Protection Cabinet that stops logging activities and requires implementation of corrective measures if a master logger is not on site or if a harvesting operation causes or is likely to cause an imminent and substantial danger to public health, safety or welfare or to the health of animals, fish, or aquatic life or to a public water supply or other beneficial uses of water. The act also has a “bad actor” provision for loggers or operators who fail to comply with the act. It provides for civil penalties up to \$1000 for each violation.

The Act also requires the Division of Forestry to maintain an inventory of Kentucky’s forests and produce a biennial report to reflect timber growth and removal, commercial species composition, timber quality, market information, forest health, and industry activity.

Development of educational programs to increase public awareness of the importance of Kentucky’s forests was also mandated by the act. In addition, a Forest Stewardship Incentives Fund was created to

assist in funding a cost-share program for landowners. Monies in this fund can be used for soil, water, and wetland protection and improvement and for other stated purposes. Monies have been requested from the General Assembly to implement this Fund but so far funds have not been appropriated.

Regulations have been developed under the Act to establish the education and training requirements for the Master Logger Program and the BMPs developed by the Division of Forestry and approved by the Agriculture Water Quality Authority. The BMPs are found in the Kentucky Agriculture Water Quality Plan. The regulations (402 KRS 3:020 and 3:030) were in effect as of May 1999.

### **Pesticide Programs**

The Division of Pesticides in the Department of Agriculture regulates the licensing, labeling, and use of pesticides throughout the state. The division has regulatory control over the pest control and lawn care industries as well as commercial and private applicators. They provide technical assistance and resources for utilizing best management practices for pesticide use in order to protect groundwater, surface water and land resources. To assist farms in keeping land free of out-dated and unwanted pesticides and containers, the division operates a Reuse and Return Program and the Pesticides Collection Program. The Division is also charged with the implementation of the Federal Insecticide, Fungicide, and Rodenticide Act.

### **Storm Water Permits**

The Kentucky Pollutant Discharge Elimination System (KPDES) is the state program that issues point source discharge permits under Section 402 of the Clean Water Act. The KPDES Branch in the Division of Water manages the program. Stormwater permits are issued under requirements in Phase 1 of the Federal stormwater program and cover the following areas:

#### Industrial:

- Construction sites
- Primary metals industry
- Wood preserving
- Coal pile runoff
- Oil and gas facilities
- Landfills/land application sites
- All others not covered by the above

These permits can be issued as general permits or individual permits. Individual permits are issued on a case-by-case basis when more stringent discharge limitations are needed. Construction sites that remove 5 or more acres of ground cover are permitted under this program and are required to have an erosion control plan on site before construction begins. At this time, some 3,000 general permits and 600 individual permits have been issued.

Municipal: Storm water permits for municipalities with a population of 100,000 or more were issued in 1992 to meet deadlines established by EPA under Phase 1 of the Federal program. In Phase 1 larger cities were required to be permitted for their separate stormwater sewers (called MS4s). Louisville and Lexington were the only cities in Kentucky that were required to be permitted. The permits mandate comprehensive pollution prevention planning programs augmented by system-wide stormwater monitoring. An important aspect of the MS4 permit is its requirement to control nonpoint pollution (sedimentation and soil erosion) from construction sites. Lexington has issued a country-wide ordinance for this purpose, and Louisville has drafted an ordinance and expects it to be final in early 2000.

The final rule for Phase II of the Federal program was published by EPA in December 1999. It requires smaller cities to get storm water discharge permits and develop management programs that address six minimum control measures. Important measures relating to NPS pollution are a required management program that reduces pollutants in storm water runoff from construction sites of one to five acres of land and a program for post-construction runoff controls that requires the utilization of more permanent BMP measures. Kentucky plans to cover Phase II implementation with a general permit. General permits will be in effect to meet the Federal deadline of December 2002.

In 1994, the Federal program required implementation of a policy to control combined sewer overflows (CSOs). A combined sewer overflow is the overflow from combined sanitary and stormwater sewers that is discharged into receiving water without going to a wastewater treatment plant. There are currently 354 CSO points statewide from 16 facilities. Most of these are located on the Ohio River and its immediate tributaries. They all are permitted under the KPDES program. CSO abatement programs are focused on achieving the nine minimum technology-based controls and developing and implementing a Long Term Capital Plan (LTCP) that is required by the policy. The intent of the nine minimum control requirement is to secure the prompt implementation of control measures that will at least partially control CSO discharges. The LTCP is based on characterization, monitoring, and modeling of the combined sewer

systems. The plan considers the site-specific nature of CSOs and gives highest priority to controlling overflows in sensitive areas.

### **Kentucky No Discharge Operational Permit**

The Division of Water, KPDES Branch, issues this permit prior to the operation of a non-discharging sewage system. These systems include closed circuit systems, subsurface injection, and land application of effluent such as spray irrigation systems. An animal waste lagoon is an example of a closed circuit system. The Division has a memorandum of understanding with NRCS which allows the Division of Water to accept animal waste handling systems designed by the NRCS without construction permit review. This permit is the major instrument used to control waste from concentrated animal feeding operations (CAFOs) and animal feeding operations (AFOs) that have lagoon systems. These permitted facilities must follow the BMPs for land application of waste established by the Agriculture Water Quality Authority in the Kentucky Agriculture Water Quality Plan.

### **Groundwater Protection Program**

A groundwater protection regulation became effective in August 1994. Its purpose is to prevent groundwater pollution through the preparation and implementation of groundwater protection plans and to ensure protection of groundwater for all current and future uses. Examples of activities that must have a plan are:

- Pesticide storage and handling for commercial purposes or distribution to a retail sales outlet.
- Pesticide application for commercial purposes, public right-of-way maintenance, or institutional lawn care.
- Land treatment or land disposal of a pollutant.
- Storage, treatment, disposal, or handling of hazardous waste, solid waste, or special waste in landfills, incinerators, surface impoundments, tanks, drums, or other containers in piles.
- Transmission in pipelines of new materials, intermediate substances or products, or finished products, or other pollutants. Gases are excluded.
- Installation or operation of on-site sewage disposal systems, including septic systems.

- Storing or related handling of road oils, dust suppressants, or deicing materials at a central location and their application.
- Mining and related activities.
- Impoundment or containment of pollutants in surface impoundments, lagoons, pits, or ditches.

The following are among activities that are excluded:

- Storing municipal solid waste in a container located on property where the waste is generated and where it is held prior to off-site disposal.
- Storing water in ponds, lakes, or reservoirs.
- Impounding stormwater, silt, or sediment in surface impoundments.
- Application of chloride-based deicing materials used on roads or parking lots.
- Agricultural activities at agriculture operations. These are defined as operations on 10 or more acres of contiguous land. The Kentucky Agriculture Water Quality Plan contains BMPs to protect groundwater from these operations.
- Application of fertilizers or pesticides by commercial applicators on land used for agriculture operations. The Department of Agriculture's Pesticide Program regulates these applications and ensures that BMPs are used to protect groundwater. Agriculture operations are also subject to the BMPs in the Kentucky Agriculture Water Quality Plan.

Groundwater protection plans may be either generic or site-specific depending on the circumstances. Generic plans may be prepared by a person or group, such as a trade group. Generic plans are reviewed and approved by the Natural Resources and Environmental Protection Cabinet. Site-specific plans are not required to be reviewed by the Cabinet but must be kept on-site for inspection. Guidelines for both plans are in the regulation. The Cabinet developed generic plans for existing residential septic systems and construction operation, closure, and capping of water wells. More recently, in May of 1999, a

generic Groundwater Protection Plan for Poultry Facilities on less than 10 acres was developed (KDOW, 1999a). It provides protection from poultry operations producing 5,000 or more birds per year on less than 10 acres of land. The plan contains siting requirements for poultry houses and specifications for handling and storage of litter. If litter is land applied on-site, an approved site-specific groundwater protection plan is required. Approved practices for dead animal disposal are also listed, including siting requirements for composting facilities. A copy of the plan is placed in Appendix 10.

### **Resource Extraction Control Programs**

Coal mining is the major resource extraction activity in Kentucky. The Department for Surface Mining Reclamation and Enforcement (DSMRE) in the Natural Resources and Environmental Protection Cabinet is the agency with primary authority to regulate coal mining in Kentucky. The Department reviews applications and issues permits for surface coal mines, the surface effects of underground mines, and preparation plants. They perform inspections of permitted operations and enforce environmental regulations. Permits to discharge to surface waters are issued by the KPDES Branch in the Division of Water. Both general permits and individual permits are issued. Individual permits with more stringent limitations are issued for discharges to outstanding state resource waters, exceptional waters and cold water aquatic habitat. Outstanding state resource waters that support federally threatened or endangered aquatic species have special conditions incorporated into the permit to protect these species. These permits are developed in collaboration with the U.S. Fish and Wildlife Service. Coal washing plants, dredging facilities, any operation on a first or second order tributary to a publicly owned lake, or a new operation within five miles upstream of an existing water intake also require individual permits.

The Department also regulates limestone quarries and clay, sand, and gravel pits. The reclamation of abandoned coal mined lands is carried out by the Division of Abandoned Lands (DAL) within the Department. Acid mine drainage from abandoned mines is a contributor to nonpoint source pollution in the coalfields of Kentucky. The Division has recently reclaimed a large acidic impoundment in Western Kentucky that will improve water quality in the Clear Creek watershed. They are working on another acid mine drainage reclamation project in the Rock Creek watershed in the Upper Cumberland River in Southeastern Kentucky that is partially funded by the 319 Program.

### **Water Quality Certification Program**

Section 401 of the Clean Water Act requires that states certify that activities permitted or licensed by a Federal Agency that result in a discharge to navigable waters comply with state water quality standards. A majority of the activities that require certification are the result of Section 404 permits issued by the U.S.

Army Corps of Engineers (COE) that have to do with physical disturbances to streams and wetlands. Examples are streambank stabilization, stream relocations, wetland loss or filling, maintenance activities in streams relating to debris removal and channel widening or straightening, and fills in streams from coal mining operations. A guidebook (KDOW, 1997a) has been developed that aids in designing projects to prevent streambank erosion and to restore streams to more natural conditions. It also contains a discussion of the guidelines that were developed by an interagency workgroup for use in wetland mitigation. A copy has been placed in Appendix 11.

The certification program for coal mining activities is largely governed by state law that relates to COE 404 permits issued on a nationwide basis for surface mining activities. Placing fill within streams in headwater areas (a valley fill), stream relocation and temporary within-stream sediment structures are examples of these activities. A set of standard conditions relating to controlling soil erosion is automatically issued for valley fills if the watershed above the fill is less than 480 acres. An individual certification, which may require mitigation measures, is required for larger watersheds. The 480-acre rule does not apply to streams that are outstanding, state or national resource waters or cold water aquatic habitat. These waters also require individual 404 permits and are subject to mitigation measures. Mitigation requirements are also contained in the law. A manual of approvable options for mitigation was developed as part of the law. It is entitled “Stream Mitigation Manual to Facilitate the Water Quality Certification Process and Assist the Development of Comprehensive Stream Mitigation Options for the Surface Mining Industry” and is available from the Division of Water.

The water quality certification program has been instrumental in controlling soil erosion from road building activities, construction sites, and stream stabilization and relocation projects.

### **Water Quality Standards Program**

Existing water quality regulations give The Natural Resources and Environmental Protection Cabinet broad authority to control nonpoint sources of pollution. For instance, the antidegradation policy of the Cabinet states that “the cabinet will assure that nonpoint sources of pollutants be controlled by application of all cost effective and reasonable best management practices” in those waters whose quality exceeds that necessary to support propagation of fish, shellfish, wildlife, and recreation in and on the waters. These waters are listed in 401 KAR 5:030 (the antidegradation implementation regulation) as exceptional waters. Pollutants, such as sediment runoff and nutrients, that can be delivered to streams and lakes from nonpoint sources are subject to control if they cause a violation of the water quality

criteria in 401 KAR 5:031. The regulations are subject to review and revision every three years. Biocriteria for listing waters in the exceptional category were recently strengthened by adding a macroinvertebrate component that will qualify more streams for this designation.

### **On-site Wastewater Disposal Programs**

The Cabinet for Health Services (CHS) is the state agency with the primary responsibility for regulating on-site sewage disposal that has a subsurface discharge. The Natural Resources and Environmental Protection Cabinet regulates on-site systems that discharge to surface waters. CHS regulates the construction, installation, or alteration of on-site systems in order to protect public health. Permits are required for each system and generally require that certified installers do the installation. County health departments serve as agents of CHS and employ certified inspectors to implement on-site sewage rules. Illegal discharges of untreated sewage from homes into surface waters is a major nonpoint source of water pollution in Kentucky. These “straight pipe” discharges have been difficult to control through regulatory programs because individual homeowners cannot afford to install approvable systems, do not understand the importance of proper disposal, and are often housed in areas where proper disposal is not feasible because of the lack of soil absorption for septic system installation.

In recognition of the problems caused by straight pipes, the 1998 General Assembly passed a law (KRS 221.350) that has been effective in halting the proliferation of straight pipes. The law requires that a property owner obtain approval of an on-site sewage disposal plan from the local health department and a final notice of release before permanent electric power can be hooked up to a new residence. Problems caused by existing straight pipe discharges remain. Voluntary efforts to combat this problem are discussed in Chapter 5.

### **Water Supply Protection**

In 1990, the Kentucky General Assembly required all counties to develop a Long-Range Water Supply Plan (KRS 151.114). Phase I of these plans requires an adequacy assessment of water source availability for water suppliers for a 20-year planning period, balancing projected demand against present or planned supplies. Each water system is designated as adequate or inadequate for the 20-year period, during both normal and drought conditions. An inadequacy can be due to insufficient water, poor water quality, or infrastructure (intakes, pumps, distribution lines, treatment capability, etc.) limitations. Also in Phase I, a watershed (surface water supplies) or recharge (groundwater supplies) protection area must be delineated on one of the eight maps required in each plan.

In Phase II of the County Water Supply Plans, potential sources of contamination in the protection area must be identified and located on another map, and each potential source must be ranked according to the degree of hazard posed by potential contaminants to the water supply source. Also, a contingency plan must be included to explain the measures that will be taken if a contaminate, or other event, necessitates closure of a treatment plant. A survey of present protections for the protection area is made, and recommendations are included for further actions needed to protect the water supplies.

Also in Phase II, for any system that is designated inadequate in Phase I, a set of alternatives to resolve the inadequacy must be developed. Then, through the leadership of a planning council, and with public participation, a preferred alternative to resolve the inadequacy must be presented. The planning council must include local officials and water system operators and can include other interested parties whose input would be beneficial to development and implementation of a plan that is appropriate for local conditions. For any system that will be inadequate during drought conditions, a Water Shortage Response Plan must be included.

The deadline for each county to have an approved Water Supply Plan in Kentucky was July 15, 1999. All counties now have approved Phase I and Phase II plans. Staff from the 15 Area Development Districts in Kentucky developed most of the plans.

In 1996, amendments to the Federal Safe Drinking Water Act required that all states develop a Source Water Assessment Program (SWAP) and submit it for EPA approval by February 1999. The main requirements of the SWAP are (1) delineation of supply protection areas, (2) an inventory of potential sources of contamination, and (3) a relative analysis of the susceptibility of the water systems to contaminants from those sources. All of these SWAP requirements are included as requirements in Kentucky's Long-Range County Water Supply Plans. Therefore, the Kentucky Division of Water submitted those parts of its ongoing program to EPA in July 1997 as the Kentucky SWAP. Kentucky received its approval in September 1998, becoming the first state in the nation to gain approval.

**SHORT-TERM OBJECTIVES AND  
PROGRAM MILESTONES**

Objectives/Milestones	Federal Fiscal Year (FFY)				
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**Objective 10. Review and revise existing regulations**

<b>a.</b> Review and revise water quality standards regulations including consideration of nutrient criteria.			<b>2002</b>	<b>2003</b>	
<b>b.</b> Incorporate national guidance on managing CAFOs and AFOs into the KPDES program.	<b>2000</b>	<b>2001</b>			
<b>c.</b> Incorporate Phase II of the national stormwater regulations into the KPDES program.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 11. Improve existing programs by developing and utilizing new management tools.**

<b>a.</b> Update the stream restoration guidance manual for the 401 Water Quality Certification Program.	<b>2000</b>	<b>2001</b>	<b>2002</b>		
<b>b.</b> Work with Agriculture Water Quality Authority in updating or incorporating new BMPs for agriculture and silviculture activities as the need arises.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Designate water priority protection regions under the Agriculture Water Quality Act.			<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>d.</b> Water supply plans/updates with SWAPP.			<b>2002</b>	<b>2003</b>	

## **CHAPTER 5**

### **NON-REGULATORY PROGRAMS**

This chapter provides information on selected non-regulatory programs that assist with implementing the Kentucky Nonpoint Source Pollution Control Program. A discussion of NPS Program partnerships is followed by discussions of NPS education and outreach, technical resources, watershed initiatives, and federal consistency review. Chapter 5 ends by listing the short-term program objectives and milestones (activities) relevant to the information presented in the chapter.

Many NPS pollution control programs include a mix of regulatory and non-regulatory approaches. Thus, some of the programs presented in this chapter include regulatory components that were not presented in Chapter 4 – State Regulatory Programs.

#### **Partnerships**

Effective partnerships help to ensure that NPS priorities are shared and agreed upon, that educational and technical information is communicated consistently, and that projects and initiatives are implemented in a timely manner. Kentucky is fortunate to have effective partnerships with agencies and organizations that possess common water quality goals and objectives. These partnerships enable the coordination of limited resources and help to prevent duplication of efforts. Examples of effective working partnerships include the Kentucky NPS Advisory Committee, the Kentucky Water Interagency Coordinating Committee, the U.S. Department of Agriculture State Technical Committee, and the University of Kentucky Environmental and Natural Resources Issues Task Force.

The NPS Advisory Committee: The Kentucky NPS Advisory Committee includes agency, citizen, and industry representatives (Appendix 2, page H-1). Advisory committee members are the backbone of the competitive project selection process. They are key reviewers in evaluating NPS pollution control projects submitted for Section 319(h) funding consideration. Committee members review Section 319(h) project workplans and evaluate the project's potential for achieving national and state objectives, including EPA's nine key elements. In performing this task, committee members use the Section 319(h) Nonpoint Source Project Work Plan Evaluation Form, designed by NPS Section staff (Appendix 3). In addition to project review and evaluation, NPS advisory committee members have been instrumental in providing input and feedback on NPS Program needs and direction. Chapter 1 provides additional

information on the NPS advisory committee and includes relevant short-term objectives and milestones (Chapter 1).

Kentucky Water Interagency Coordinating Committee: The Kentucky Water Interagency Coordinating Committee (KWICC) actively participates in NPS pollution control activities, including evaluation, development and implementation. KWICC is an informal committee that began in 1991 to convene individuals representing organizations interested in addressing water quality issues. The initial core organizations were:

- University of Kentucky Cooperative Extension Service
- Kentucky Department of Agriculture, Division of Pesticides
- U.S. Department of Agriculture, Natural Resources Conservation Service
- Kentucky Division of Conservation
- Kentucky Division of Water
- U.S. Department of Agriculture, Farm Service Agency
- Kentucky Farm Bureau

Other organizations that have become involved with KWICC include:

- U.S. Geological Survey
- Kentucky State University
- Kentucky Geological Survey
- Kentucky Department for Fish and Wildlife Resources
- Western Kentucky University Department of Agriculture

The membership of KWICC may vary from time to time as issues emerge and are addressed. KWICC is a forum for discussing, evaluating, and making recommendations on various water quality issues. One of KWICC's strengths is its informality in operating procedures. Issues can be discussed in an informal environment and yet benefit from the expertise and missions of the various resources and organizations that are represented. Some of the water quality issues that KWICC has been involved with include evaluating experimental BMPs, reviewing and evaluating Section 319(h) project workplans, reviewing and evaluating USDA watershed projects, targeting funds for BMP research, evaluating nonpoint source

monitoring programs, and reviewing and making recommendations on 303(d) reports. Interagency, multidiscipline peer reviews by KWICC members have been insightful and valuable to the agencies and organizations involved. KWICC meets quarterly, and the host is rotated among the member organizations. The Kentucky Division of Water will continue to participate as a KWICC member, and will call upon KWICC to provide valuable NPS Program input and directions.

State Technical Committee: In addition to the NPS advisory Committee and KWICC, Kentucky also has a diverse and active U.S. Department of Agriculture State Technical Committee. More than 45 agencies, organizations, environmental groups, and citizens are represented on the State Technical Committee. The State Technical Committee (STC) includes three subcommittees: Environmental Quality Incentive Program (EQIP), Conservation Reserve Program (CRP), and wetlands/wildlife. The STC and subcommittees meet several times a year to share information, set priorities, and to develop NPS pollution control strategies.

STC has provided input and recommendations to the State Conservationist on numerous programs and topics:

- Conservation priority areas,
- EQIP ranking criteria,
- Eligible practices,
- 303(d) report,
- EQIP education assistance funds, and
- EQIP priority areas.

Kentucky's STC has an outstanding track record for targeting NPS pollution control funds in NPS priority watersheds (e.g., 303(d)/TMDL watersheds). From the development of a sophisticated water-quality-based EQIP criteria formula to targeting of NPS pollution control funds in priority watersheds, the U.S. Department of Agriculture is both a cooperator and a leader in NPS pollution control.

Environmental and Natural Resources Issues Task Force: The University of Kentucky also has an active forum that provides coordination and communication on environmental issues. In 1995, the University of Kentucky College of Agriculture, revamped two former environmental groups (Water Quality and Solid Waste) by combining them into a new "Environmental and Natural Resources Issues Task Force." The mission of this group is (1) to provide environmental natural resource leadership and program

development, and (2) to address critical environmental education needs in the state. The broad goals of the Environmental and Natural Resources Issues (ENRI) Task Force are to:

- Identify emerging issues related to environmental and natural resources topics important to the rural and urban communities of Kentucky,
- Provide leadership for knowledge transfer to increase environmental and natural resource literacy among rural and urban residents, and
- Facilitate partnerships with other agencies and groups that are responsive to the environmental needs of communities.

ENRI strives to meet these goals by forming Focus Groups/Expert Teams to address specific environmental and natural resource issues. The Focus Groups are formed to complete a specific task and are then disbanded. Examples of specific nonpoint source pollution control initiatives that have resulted from ENRI Focus Groups include Agriculture Water Quality Act training and education, nutrient management training, youth water quality day camp, and a pilot Master Water Educator Program. ENRI has been responsible for initiating and coordinating many successful NPS pollution control programs. The Division of Water will continue to support the efforts of ENRI and will continue to serve on the Advisory Group.

Others: In addition to partnerships associated with committees and task forces, partnerships with other agencies, organizations, and citizen groups are equally important. Many agencies and organizations coordinate and implement NPS programs on a daily basis. For example, the partnership between the Divisions of Water and Conservation is critically important and integral to effective NPS pollution control. The Division of Conservation provides implementation leadership for the agriculture and construction components of the NPS Pollution Control Program. The Division of Water relies upon and defers to the Division of Conservation for agricultural and construction technical support and expertise.

The list of NPS pollution control partners in Kentucky is extensive. The previously mentioned information was intended to highlight only a few of the many effective NPS pollution control partnerships.

## **Outreach and Education**

Outreach and education is the cornerstone to controlling NPS pollution. The objectives of NPS education is to raise awareness and motivate change. In order to motivate individuals, agencies, or organizations to modify their behaviors or programs, a basic understanding of watershed processes, water quality, and aquatic ecosystems is needed.

Education is an important part of Kentucky's overall pollution control strategy. Instilling a sense of personal responsibility for contributing to NPS pollution will continue to be a challenge. Both statewide and watershed-focused education and outreach programs are integral to preventing and reducing NPS pollution. A review of the list of Section 319(h)-funded projects in Chapter 1 demonstrates Kentucky's commitment to providing a balanced program with statewide educational initiatives. General and technical educational programs will continue to be solicited and funded.

In 1999, the NPS Section hired an NPS Education Coordinator to assist with coordinating NPS educational information and programs. The NPS Education Coordinator will provide oversight on Section 319(h)-funded educational projects and products, will increase inter- and intra-agency communication and coordination, and will develop or modify NPS educational programs for Kentucky. In addition, the NPS Education Coordinator will assist with recruiting urban educational programs to reduce the impacts of runoff from impervious areas.

Kentucky Nonpoint Source Conference: Since 1995 the Kentucky Division of Water and the University of Kentucky Water Resources Research Institute have hosted four NPS Conferences. The two main purposes of the conference are to (1) improve communication between Division of Water NPS Section staff and Section 319(h) project managers and (2) improve the format and delivery of Kentucky's Annual Report. The conference allows project managers to share Annual Report information with others. The oral presentations, supplemented with written abstracts, have partially replaced the traditional Annual Report. Since 1995, the conference has grown in size, attendance, and scope. In addition to oral presentations by Section 319(h) contractors and project managers, the conference now includes guest speakers, field trips, poster presentations, workshops, and displays (Appendix 8).

The NPS Conference would not have been possible without the support and vision of the University of Kentucky Water Resources Research Institute (WRRI). Under contract with the Division of Water, the Institute has been responsible for coordinating and logistical planning for the conference. WRRI has

been responsible for scheduling speakers and soliciting exhibitors, coordinating field trips, arranging transportation for the conference, and assisting in creating and maintaining a conference web page.

The location of the conference has been coordinated to coincide with the Kentucky Watershed Management Approach 5-year river basin cycle. Moving the location of the NPS Conference to different river basins has allowed us to reach new audiences and establish new partnerships. Kentucky will continue to host the NPS Conference.

Water Watch: Water Watch is Kentucky's "Adopt-A-Stream" program. Water Watch is one of the most well-known environmental education programs in Kentucky and has been the recipient of numerous awards. The program involves thousands of students, teachers, and adult citizens in monitoring the lakes and streams of the Commonwealth. One of the features of the Water Watch program is its ability to engage people in their communities' water quality issues. The program electronically connects Water Watch groups across the state and allows them to share information. In 1998-99, more than 100 teachers were trained in water quality testing techniques. Water Watch is a vital program that provides water quality education to the citizens of the Commonwealth.

Watershed Watch: Watershed Watch is a group of more than 900 volunteers in Kentucky that are giving their time to improve the waterways of the Commonwealth through a coordinated campaign of water quality monitoring, skills development, and advocacy. The effort includes more than 300 organizations and 63 leaders organized in six local watershed steering committees. With support from the Division of Water's Watershed Watch Coordinator, Watershed Watch provides technical assistance to local watershed groups for dealing with issues raised by their monitoring and assessment efforts. Each fall, a "Watershed Protection Conference" is held in each local watershed so that individuals, community organizations, scientific researchers, and agency personnel can come together to discuss the condition of their waterways.

Forest Owner Training: NPS Program cooperators and partners have identified the need for a holistic educational approach to forest stewardship that will maximize the possibility of landowner success in protecting water quality by supporting good decisions, planning for future uses of the forest and implementation of protection measures in conjunction with forest-disturbing activities. To that end, the Division of Water has developed a strategy for addressing this need. A contract has been developed with Mountain Association for Community Economic Development for the development and distribution of

materials, and to conduct forested land owner training. The Kentucky Forest Owners Handbook (draft), which includes both regulatory BMPs and non-regulatory Land and Water Protection Measures, will undergo an extensive peer review. The handbook will provide landowners, foresters, environmentalists, and others who provide services to landowners with information concerning the short- and long-term benefits of good forest management. It will promote the implementation of land and water protection measures as good for the forest, land, water, community, landowner, and future generations. The materials and subsequent training will fill a critical gap by providing landowners with numerous options for managing their land and water resources. All BMPs required by the Agriculture Water Quality Act and Forest Conservation Act will be included in the landowner handbook.

Watershed Management Approach Integration: Chapter 2 presents information on Section 319(h) projects and initiatives that have been funded since 1990. Statewide NPS education and outreach projects and initiatives have been funded every year. However, NPS Section staff recognized that additional educational opportunities existed under the Watershed Management Approach Framework. To that end, the Section 319(h) grant guidance document and project ranking and selection procedures have been modified to support educational and outreach initiatives within specific river basin management units. Priority points are awarded to NPS educational and outreach programs that are coordinated with the river basin management unit cycles. Detailed information concerning river basin management unit priority funding is presented in Appendices 2 and 3.

## Technical Resources

The original Kentucky NPS Management Plan (KDOW, 1989b) described and listed best management practices (BMPs) that would be used to control NPS pollution. While BMPs are still the vehicle for controlling NPS pollution, each BMP has not been listed and described in detail in this document. Kentucky's water quality BMPs for nonpoint source pollution control are listed and described in BMP manuals.

### BMPs – Evaluation and Technology Transfer:

NPS Category	Status	Current BMP Manual
Agriculture	Final/Complete	<u>The Kentucky Agriculture Water Quality Plan.</u> Kentucky Division of Conservation. 1996. (Appendix 6).

Agriculture	Final/Complete	<u>Kentucky Agriculture Water Quality Authority – Producer Notebook</u> . Kentucky Division of Conservation. 1997. (Appendix 12)
Silviculture (Logger)	Final*	<u>Kentucky Forest Practice Guidelines for Water Quality Management</u> . Kentucky Division of Forestry. 1992. (Appendix 12)
Construction	Needs Revision	<u>Kentucky Best Management Practices for Construction Activities</u> . Divisions of Conservation and Water. 1994 (Appendix 12)
Coal Mining	Final/Complete	<u>Kentucky Coal Mining Practice Guidelines for Water Quality Management</u> . Division of Water & University of Kentucky. 1996. (Attachment 12).
Turfgrass	Final/Complete	<u>Turfgrass Best Management Practices for Protection of Water Resources</u> . University of Kentucky. 1999. (Appendix 12).

\* The 1992 Kentucky Forest Practice Guidelines for Water Quality Management is the most current version approved by the Kentucky Division of Water. See Chapter 4 for details on Kentucky's new Forest Conservation Act and Forestry BMP Board.

Chapter 4 discusses the Agriculture Water Quality Act, the Forest Conservation Act, and the BMP approval processes associated with both of these. Under the Agriculture Water Quality Act, the Kentucky Division of Water will continue to review and approve BMP changes or modifications submitted by the Agriculture Water Quality Authority.

USDA policy and technical guidance is dynamic and flexible. Recently, changes in policy and technical guidance for nutrient management standards were issued which, in essence, changed the standard from a nutrient-based application to nitrogen and phosphorus-based applications. Since the Kentucky AWQA nutrient management BMPs are based on the NRCS standards and specifications, Kentucky farmers are now required to consider both nitrogen and phosphorus levels in accordance with NRCS standards and specifications. In the past, Kentucky's NPS program has participated in Section 319 projects involving demonstrations of waste utilization and nutrient management for turfgrass, equine waste, and dairy waste. Currently, DOW and DOC are working together on initiatives to develop and support statewide nutrient

management awareness training to provide training across the state on the new USDA-NRCS nutrient management standards. The Division of Water will coordinate with and support federal and state agriculture agencies in developing and implementing nutrient management plans, including statewide nutrient management awareness training.

Kentucky's construction BMP manual is outdated and is no longer serving our needs. NPS Section staff will recruit potential contractors to review and revise Kentucky's construction BMP manual. Revisions will include fluvial geomorphic considerations.

Fluvial Geomorphology and Natural Stream Channels: Fluvial geomorphology involves the study of the interactions of land use, soil types, topography, and climate and their effect on stream flow. Land uses in Kentucky and direct channel modifications have destabilized streams and caused stream impairments. Bank and bed erosion in unstable channels produces sediments that overwhelm the capacity of streams to transport them. Siltation occurs where the sediments are deposited. Stream channel adjustments including channel aggradation, degradation, and widening remove riparian vegetation and disrupt the formation of stable bedforms such as pools and riffles. An overall reduction in habitat diversity and biodiversity occurs. According to the 1999 Kentucky Nonpoint Source Assessment Report (KDOW/UK, 1999), siltation is the greatest cause of aquatic habitat impairment in Kentucky's streams.

The Kentucky NPS Section has assembled a Natural Channel Design (NCD) Working Group in order to improve the state of knowledge and practice of the individuals and agencies providing technical assistance for stream and streambank restoration projects in Kentucky. The NCD Working Group is composed of state and federal agency and university personnel who are actively involved in stream restoration or are responsible for regulating the modification, relocation, or restoration of streams. These individuals include biologists, botanists, technologists, water resource engineers, forest hydrologists, highway engineers, and bioengineers with extensive knowledge of, and experience with, the ecology and geomorphology of Kentucky streams.

Kentucky will continue to support improving the knowledge base of NPS Program staff, cooperators and partners involved with natural channel design, assessment, restoration and protection. It is essential that Kentucky gain the necessary knowledge to understand the technical details of this emerging science. To that end, Kentucky will support technology transfer, education, training, and other initiatives that support natural channel design, assessment, restoration, and protection.

On-site Wastewater: In May 1999, the Kentucky Environmental Quality Commission (EQC) embarked on a project to assess on-site sewage issues. The EQC conducted interviews with more than 30 people, solicited input using surveys, and convened 37 people to participate in a roundtable discussion. (KEQC, 1999). EQC prepared a report of their findings entitled On-site Sewage in Kentucky: An Assessment of Issues and Policy Options to Improve On-site Sewage Management in Kentucky (KEQC, 1999). The report presented program issues and recommendations related to the control of nonpoint source pollution from failing and non-existent household wastewater. This report is included in Appendix 13 and discussed below.

“The improper treatment and disposal of sewage remains a significant health and environmental threat in Kentucky. Efforts to address sewage pollution have primarily focused on municipal and industrial treatment plants. However, each year tens of thousands of individual on-site sewage systems are permitted. The extent that on-site sewage systems are contributing to public health and water quality problems are largely unknown but are considered great” (KEQC, 1999).

“The Cabinet for Health Services is the lead state agency for administering the On-site Sewage Program. State law establishes specific authority relative to on-site sewage disposal systems that have a subsurface discharge. The law provides for the certification of inspectors and installers of on-site sewage systems, adoption of regulations to carry out this authority, and other related matters. The Natural Resources and Environmental Protection Cabinet Division of Water is responsible for permitting package wastewater plants which serve individual or multiple residences. The Division of Water also issues discharge permits for municipal and industrial facilities. The Division also responds to complaints regarding straight pipe and on-site wastewater system dischargers to surface water” (KEQC, 1999).

“While an On-site Sewage Program has been in place in Kentucky since the 1980’s it has been poorly funded and has received low priority. However, in recent years, state leaders have begun to recognize the need to promote proper on-site sewage management in Kentucky. The passage of Senate Bill 18 in 1998 has been an effective tool in halting the proliferation of straight pipes in Kentucky. And the PRIDE program in Eastern Kentucky has demonstrated that, with adequate resources and leadership, Kentucky can tackle this tough problem and build healthy and sustainable communities” (KEQC, 1999).

The EQC investigations and report provided a foundation for moving toward fully addressing on-site sewage problems in Kentucky. The Report identifies and discussed 16 specific recommendations for

addressing on-site sewage impacts. Some of these recommendations required funding, some focused on targeting existing resources, while others sought to promote a new spirit of collaboration and cooperation among state agencies (KEQC, 1999).

In 1999, the Kentucky Division of Water, Nonpoint Source Section, hired an On-site Wastewater Coordinator. The On-site Wastewater Coordinator will provide the necessary coordination to move forward with realizing some of these recommendations; the most critical being the development of a joint Natural Resources and Environmental Protection Cabinet and Cabinet for Health Services On-site Sewage Action Plan.

### **Watershed Projects**

State watershed priorities and watershed management plans are developed in cooperation with, and in support of, other natural resource and environmental protection programs. By assessing NPS impacts and threats, encouraging public participation, prioritizing NPS watersheds, targeting BMPs, and partnering and leveraging resources, watershed remediation projects will be developed and implemented. Watershed projects have been extensively discussed throughout this document because they are the link to improving water quality and de-listing 303(d) waterbodies. Encouraging BMP implementation in NPS priority watersheds is one of the most important tasks that NPS Section staff participate in, regardless of whether or not Section 319(h) funding is being pursued or used. NPS Program partnerships, discussed previously, provide the opportunity for influencing the application of NPS pollution control resources.

Section 319(h) funds are provided to projects on a competitive basis (Appendices 2 & 3). Funding priority is given to projects that address identified nonpoint source problems or threats in priority watersheds. Priority watersheds include groundwater, wetlands, rivers, streams, and reservoirs impacted by nonpoint source pollution. They also include high quality waters threatened by NPS pollution because of changing land uses. The Nonpoint Source Program seeks to (1) restore watersheds that have been altered or degraded and (2) protect watersheds from future impacts. Chapter 3 and Appendix 2 provide an in-depth discussion of NPS priority watersheds, and Appendix 3 presents ranking and selection procedures for Section 319(h) nonpoint source projects.

Section 319(h)-funded projects are required to identify and document measures of project success. For watershed projects that include BMP implementation, the true measure of success is reducing the nonpoint source pollutant load – or improving water quality. Water quality monitoring must be

implemented for watershed projects that include BMP implementation in order to gauge effectiveness and success. Appendix 2 provides detailed information on measures of success and quality assurance/quality control requirements for watershed projects.

Clean Water Action Plan Projects: In September 1998, Kentucky submitted its Unified Watershed Assessment and Restoration Priorities to the EPA. Subsequent to that submittal, Kentucky developed and submitted project workplans to EPA seeking financial support for implementing the identified Clean Water Action Plan (CWAP) projects. FFY 1999 Section 319(h) Grant funds were requested and received to support five CWAP initiatives: Rock Creek (acid mine drainage), Little River (agriculture), Herrington Lake/Dix River (agriculture), Fleming Creek (agriculture) and Upper Cumberland (straight pipes). The grant was awarded in late December 1999 and accepted in early January 2000. Thus, the CWAP initiatives are just getting started. Kentucky will continue to seek staff support to provide the necessary administrative and technical support for these projects.

Watershed Management Approach Framework: As part of a national EPA initiative the Kentucky Division of Water has developed a comprehensive watershed framework for use in managing and preserving the water resources of Kentucky (Appendix 4). The purpose of the framework is to provide a means for coordinating and integrating the programs, tools, and resources of multiple stakeholder groups to better protect, maintain, and restore the ecological structure and function of watersheds, as well as support sustainable uses of watersheds. In contrast to a strictly regulatory approach, the framework employs a resource-centered approach. Success is measured in terms of maintaining and improving environmental quality and protecting public health by fostering the protection and restoration of specific resource uses, such as drinking water supply, aquatic and wildlife habitat and propagation, and recreation, while sustaining economic activities that depend on natural resources (KDOW, 1997b; KDOW, 1999b).

The framework includes five basic components:

- **Basin Management Units.** In order to facilitate the application of the watershed management approach across the Commonwealth, the state of Kentucky has been subdivided into five basin management units. The basin management units are based on 6-

digit hydrologic unit codes (HUCs), within which are nested 8, 11, and 14-digit HUCs (watersheds).

- A Basin Management Cycle. Kentucky's basin management cycle has five activity phases that are sequenced and repeated for each basin management unit at fixed 5-year intervals to ensure that management goals, priorities, and implementation strategies are routinely updated and progressively implemented.
- A Statewide Basin Management Schedule. In applying a watershed management approach across the state, each basin management unit will be processed through a five-part basin management cycle.
- A Partner Network and Public Participation. River basin teams will provide the opportunity for both partnership and public participation in targeting restoration activities and in developing watershed action plans.
- Basin and watershed management plans. Comprehensive basin and watershed management plans are designed to maximize pollution control efforts.

Land Management and Acquisition: Land management and acquisition are important NPS pollution control tools that may have appropriate uses in protecting critical areas. Land management requires time and effort, usually in large quantities. It is generally preferable to secure an easement and leave the management of that land to the private or corporate owner. If an easement is either not working or does not seem sufficient in the first place, land acquisition may be considered as an option. Land acquisition may be used as a best management procedure not a practice, when all other appropriate BMPs have been applied. Land acquisition is one of several tools used for critical area treatment for NPS sensitive lands.

NPS-sensitive lands are those lands serving a function in preventing, controlling or abating nonpoint source pollution of adjacent waterbodies. For example, riparian areas, greenways along urban streams, and wetlands located between a nonpoint land use and a waterbody could be considered NPS-sensitive lands. In addition to EPA criteria, state criteria for determining if land acquisition is an appropriate tool in a particular project area will include the degree of impairment or threat to the receiving waterbody, the extent of traditional BMPs on the ground, BMP maintenance in the watershed, landowner cooperation,

and the ability to measure the success of the land acquisition. Kentucky will continue to consider land management and land acquisition for NPS-sensitive lands.

### **Federal Consistency**

Federal agencies have a key role in helping to control NPS pollution. Kentucky maintains project and program partnerships with representatives from the U.S. Office of Surface Mining, U.S. Department of Interior National Park Service, U.S. Department of Agriculture Forest Service, U.S. Department of Agriculture Farm Service Agency, and U.S. Department of Agriculture Natural Resources Conservation Service. In addition to partnerships, Section 319 of the Clean Water Act of 1987 establishes a provision to promote consistency of Federal assistance and development projects with state NPS management programs (EPA, No date).

Pursuant to the authority delegated to the Kentucky State Clearinghouse through Executive Order 12372 and Kentucky Revised Statute 45.031, any application for assistance from a federal program is subject to review by the Intergovernmental Review Process. The Kentucky State Clearinghouse has been designated as the state Single Point of Contact (SPOC) and is charged with providing state and local input, in a timely fashion, to the cognizant federal agency. The list of programs remains unchanged from the 1989 Kentucky NPS Management Program document and includes the following federal agencies: Department of Agriculture, Department of Commerce, Department of Defense, Department of Health and Human Services, Department of Housing and Urban Development, Department of the Interior, Department of Transportation, Tennessee Valley Authority, Veterans Administration, Environmental Protection Agency, and Federal Emergency Management Agency.

The Federal Assistance Review (FAR) Coordinator in the Division of Water is responsible for forwarding all federal assistance programs and development projects. The Division of Water, Nonpoint Source Section is responsible for reviewing all federal assistance programs and development projects forwarded by the FAR Coordinator to ensure consistency with Kentucky's NPS Management Program. Special attention and focus is placed on projects in or near NPS priority watersheds (e.g., 303(d)/TMDL).

In addition to the formal Federal Consistency Review process, Memoranda of Understanding (MOUs) are a less formal options to pursue. MOUs are used to establish and maintain federal or state relationships. The Kentucky NPS Pollution Control Program has an MOU with the U.S. Forest Service that establishes a communication process for sharing information on BMPs and water quality data.

Kentucky will continue to provide Federal Consistency Review by reviewing those projects forwarded by the agency's FAR Coordinator. Special attention and focus will be placed on those projects that are in or near NPS priority watersheds. Kentucky will also develop, review, and revise MOUs as appropriate or needed.

## SHORT-TERM OBJECTIVES AND PROGRAM MILESTONES

Objectives/Milestones	Federal Fiscal Year (FFY)				
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### Objective 12. Maintain collaborative partnerships for targeting NPS pollution control activities.

<b>a.</b> Actively participate in the Kentucky Water Interagency Coordinating Committee.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Actively participate in the State Technical Committee.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Actively participate in the Advisory Group for the Environmental and Natural Resources Issues Task Force.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

### Objective 13. Strengthen NPS Education and Outreach Efforts.

<b>a.</b> Recruit partners to assist with implementing statewide and watershed focused projects.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Host the Kentucky NPS Conference.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Support volunteer water quality monitoring efforts.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>d.</b> Complete Kentucky Forest Owners Handbook.	<b>2000</b>				
<b>e.</b> Implement Forest Owner Training utilizing Kentucky Forest Owners Handbook.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

### Objective 14. Develop or Revise BMPs and BMP Manuals as Necessary.

<b>a.</b> Review and approve BMP revisions associated with the Agriculture Water Quality Act.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Support the development of comprehensive Nutrient Management Plans.		<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Update Construction BMP Manual.		<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 15. Provide Technology Transfer.**

<b>a.</b> Conduct landowner trainings on water quality BMPs.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Support natural channel design, assessment, restoration, and protection.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 16. Reduce nonpoint source pollution from failing and non-existent on-site wastewater systems.**

<b>a.</b> Development of joint Natural Resources and Environmental Protection Cabinet and Cabinet for Health Services On-site Sewage Action Plan.	<b>2000</b>				
<b>b.</b> Implement On-site Sewage Action Plan.		<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 17. Reduce NPS Pollution in Priority Watersheds.**

<b>a.</b> Target NPS pollution control activities to NPS Priority Watersheds.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Implement Clean Water Action Plan Projects.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>c.</b> Support Watershed Management Approach Framework.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 18. Improve Federal Consistency with Kentucky NPS Management Program.**

<b>a.</b> Review federal assistance programs and development projects.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Review and revise MOU with U.S. Forest Service.	<b>2000</b>				
<b>c.</b> Develop MOUs with other state or federal agencies.			<b>2002</b>	<b>2003</b>	<b>2004</b>

## **CHAPTER 6**

### **FUNDING**

This chapter provides information on funding for the Kentucky Nonpoint Source Pollution Control Program. An overview of the program's funding sources is followed by a discussion of private, local, state, and federal funding sources. The chapter ends by listing the short-term program objectives and milestones (activities) relevant to the information presented in the chapter.

Funding for NPS pollution control comes from a variety of private, local, state, and federal sources. To list and document all sources and contributors would be a daunting, if not impossible, task. Thus, this chapter focuses on identifying the primary funding sources and institutions that the Kentucky Nonpoint Source Pollution Control Program coordinates and partners with.

The Kentucky Nonpoint Source Pollution Control Program targets financial resources to NPS Priority Watersheds (Chapter 3). Through established partnerships, federal, state, local, and private resources are targeted to maximize the pollution control benefits (Chapters 3 & 4). Through the Kentucky Watershed Management Approach Framework the number of contributing partners will likely increase. The Kentucky NPS Pollution Control Program also coordinates statewide initiatives with program cooperators and partners. Groups such as KWICC, ENRI, and the State Technical Committee provide opportunities for building partnerships and coordinating statewide activities.

#### **Private**

Because nonpoint source pollution is most often "personal pollution," citizens and landowners are often in the forefront of carrying out nonpoint source pollution control activities. Whether acting individually (a farmer, a homeowner, etc.) or as part of a group (concerned citizens, neighborhood organizations, environmental groups, scouts, etc.) landowners contribute money, time, land, and other resources. Private groups such as The Nature Conservancy, Soil & Water Conservation Society, Kentucky Homebuilders Association, Kentucky Forest Industries Association, Kentucky Farm Bureau, American Cave Conservation Association, etc., are instrumental partners that contribute tremendously to nonpoint source pollution control by leading, cooperating, or supporting NPS projects and programs. Private industries such as Toyota, Kentucky American Water Company, Ashland Oil, The Louisville Courier - Journal, etc., contribute to nonpoint source pollution control by providing analytical laboratory support

for NPS projects, implementing pollution control practices, and providing resources for NPS educational programs.

## **Local**

Increasingly, local governments and institutions are funding nonpoint source pollution control. For example, several county governments are providing fiscal support for programs ranging from dead animal pick-up services to the installation of on-site wastewater systems to eliminate residential straight pipe discharges and to upgrade failing septic systems. Conservation Districts contribute staff resources and fiscal support to assess NPS impacts, develop watershed protection plans, and implement NPS pollution control activities. Area Development Districts are actively involved in identifying existing and potential NPS impacts and threats as part of their Source Water Protection Plans. Kentucky's larger metropolitan areas such as Louisville (Louisville Metropolitan Sewer District) and Lexington (Lexington-Fayette Urban County Government) are also leading implementation of NPS pollution control programs and projects. Locally led and financed NPS initiatives are important contributors to the Kentucky NPS Pollution Control Program.

## **State**

Kentucky Division of Water (KDOW): The Kentucky Division of Water is the lead oversight agency for the Kentucky Nonpoint Source Pollution Control Program. Funding for program support is partially provided through Kentucky's General Fund that provides support for personnel, travel, indirect, supplies, and equipment. The state's time code tracking system is used to document and track agency personnel and indirect expenses for the NPS program. State funding for the NPS Program meets the federal matching requirements of Section 319(h) and is consistent with maintenance of effort requirements. The KDOW is committed to maintaining this level of effort for the NPS Program.

Another major state funding source for NPS pollution control is available through the State Revolving Fund (SRF). The Clean Water State Revolving Fund *Funding Framework Policy* significantly expanded the scope of SRF to include NPS activities. The Kentucky NPS Program, in consultation with SRF managers, prioritized SRF loans for installing on-site wastewater systems to reduce bacteriological and nutrient loading from failing and non-existent residential wastewater systems. Kentucky's State Revolving Fund Intended Use Plans for FFY's 1994-1995, 1996-1997, 1998-1999, and 2000-2001 have included a narrative description of NPS pollution control of on-site wastewater under "Expanded Uses" (Commonwealth of Kentucky, Undated). Unfortunately, Kentucky has lacked the dedicated staff to carry

forward with the “Expanded Uses” portion of the Intended Use Plan. Recognizing the tremendous financial opportunities available for NPS pollution control through the SRF program, and recognizing and acknowledging the lack of progress made in utilizing SRF for NPS, the Kentucky Division of Water requested Section 319(h) financial support (FFY 1995 grant) for securing dedicated staff for this initiative. EPA approved funding for an On-site Wastewater Coordinator position, but Kentucky was unable to utilize the funds to establish the position until recently. In 1999, the Division of Water Nonpoint Source Section hired an On-Site Wastewater Coordinator as a state merit position for the NPS Program. One of the responsibilities of this position will be to utilize SRF for addressing NPS pollution impacts from failing or non-existent on-site wastewater systems. Thus, Kentucky will make demonstrable progress in using SRF for addressing NPS impacts. Once the process for using SRF for NPS has been successfully demonstrated for on-site wastewater, additional NPS activities (e.g. urban, stream bank protection, etc.) will be investigated and pursued.

Kentucky Division of Conservation (KDOC) and The Soil and Water Conservation Commission: As the designated lead implementation agency for nonpoint source pollution control for agriculture and construction, the Kentucky Division of Conservation is often involved in leading, guiding, and implementing NPS pollution control projects and initiatives. The KDOC and KDOW staff are in frequent communication and consultation concerning the technical, financial, social, and economic issues related to BMPs and project implementation. Kentucky’s General Fund also provides personnel, travel, indirect, supplies, and equipment support for the Division of Conservation.

The Kentucky Soil and Water Conservation Commission has maintained an equipment revolving loan program for more than 40 years. The equipment revolving loan program has enabled specialized conservation equipment, such as no-till drills and animal waste lagoon pumping equipment, to be purchased.

The Soil Erosion and Water Quality Cost Share Program was established to help producers engaged in agricultural or silvicultural operations better address nonpoint source pollution problems. This program authorizes the Kentucky Soil and Water Conservation Commission to administer the program at the state level and approve the conservation practices that will be eligible for cost share funds. The BMPs approved for cost share reduce animal waste nutrients, address the loss of topsoil, and reduce sediment and other nonpoint source pollutants.

The first signup for the Kentucky Soil Erosion and Water Quality Cost Share program was in the spring of 1995. Nearly 500 applications were received from 96 counties, and totaled \$4.1 million. Of those, 61 applications were funded in 39 counties for a total funding of more than \$550,000. Funding was made possible through the Kentucky Department of Agriculture from an increase in the pesticide product registration fee. The program has been instrumental in helping agricultural operators protect the soil and water resources of Kentucky. After four years, there have been 2,658 applications requesting \$20.9 million for cost share, but only \$5.1 million was available to fund 716 of these conservation projects.

Other State Agencies: Other state agencies and programs also provide nonpoint source pollution control funds. The Division of Forestry wholly or partially implements the Forest Stewardship Program, Forest Improvement Program, Kentucky Master Logger Program, and the Forest Conservation Act with General Fund dollars. Similarly, the Kentucky Department of Fish and Wildlife Resources provides state funding for water quality monitoring, wetland education, aquatic resource education, Wildlife Habitat Improvement Program implementation, stream restoration initiatives, and many other NPS pollution control efforts. The Department of Agriculture also contributes state resources to the NPS Program, from the state pesticide container Rinse and Return program to the development of the State Pesticide Management Program to educational and outreach programs such as Agriculture and Environment in the Classroom and Enviroscape demonstrations. The Kentucky State Nature Preserves Commission contributes state resources toward NPS pollution control through assessment monitoring activities, land acquisitions, riparian improvement and enhancement, and other streambank protection initiatives.

The Divisions of Waste Management (DWM) and Air Quality (DAQ) are within the same Department (Department for Environmental Protection) as the KDOW. These two “sister” agencies also provide state resources that help to control nonpoint source pollution.

Universities provide state financial support to NPS pollution control through courses (which provide instruction about NPS issues), BMP and watershed research, and technological transfer. In addition are the noteworthy efforts and actions by Cooperative Extension Service employees who often deal with nonpoint source pollution control daily.

## **Federal**

U.S. Environmental Protection Agency: Federal financial support for NPS pollution control is diverse and expands beyond Section 319(h) grant funding. Federal financial support has been provided to

KDOW through Sections 106,104(b)3, 319(h), 604(b), Clean Lakes, and Drinking Water grants for NPS assessment monitoring, watershed approach management implementation, groundwater protection activities, and other watershed protection activities.

Section 319(h) Nonpoint Source Implementation Grants provide partial support for NPS staff at the Divisions of Water and Conservation, NPS assessment monitoring projects, and NPS implementation projects. The Kentucky Nonpoint Source Pollution Control Program uses a competitive process to ensure that the best, most effective NPS implementation projects are selected for Section 319(h) funding. The process for awarding Section 319(h) funds for NPS implementation projects is described in detail in Appendices 2 & 3 and is summarized below:

- Advertising: Availability of grant funds is announced at annual Kentucky NPS Conference. Flyers (Appendix 14) distributed to over 1,500 individuals, organizations, publications, etc. Press release disseminated through Kentucky daily, and weekly newspapers and the Associated Press.
- Proposals: Proposals are reviewed by NPS Section staff for eligibility, strengths/weaknesses, duplication of efforts, etc. Ineligible projects are notified of such and where applicable, alternative funding sources identified. Eligible projects are notified of such, and general comments and suggestions provided and detailed workplans are requested.
- Workplan Review: Project workplans are reviewed by NPS Section staff for eligibility, completeness and consistency with program goals and “nine key elements.” Where necessary, detailed comments are provided to applicants for incorporation and revision. Revised workplans are reviewed; incomplete or deficient project workplans are not accepted for further funding consideration for the current year.
- Project Selection: “Project Evaluation Notebooks” are compiled and distributed to agency staff, NPS Advisory Committee members, and [Kentucky Water Interagency Coordinating Committee] members. Evaluators (agency, industry, and citizen representatives) review project workplans and complete a Section 319(h) Nonpoint Source Evaluation and Ranking Criteria Form for each project. Criteria values and weights are tabulated, the projects are listed in funding priority, and the funding cut-off

level assigned (The amount of funds available for competitive projects varies slightly from year to year but averages approximately \$1 million in federal financial assistance per grant).

As detailed in Appendices 2 & 3, project evaluation criteria are based on EPA's "nine key elements," and the weights are designed to prioritize projects which have the greatest chance of restoring beneficial uses or maintaining beneficial uses (where a demonstrable threat exists).

U.S. Department of Agriculture (USDA): The Natural Resources Conservation Service and the Farm Service Agency are among the most important and critical federal NPS partners in Kentucky. These two agencies provide the majority of the agricultural technical and financial assistance that is available to producers for implementing BMPs to address NPS pollution. Federal USDA programs, such as the Environmental Quality Incentive Program (EQIP), Conservation Reserve Program (CRP), Wildlife Habitat Improvement Program (WHIP), Forest Incentive Program (FIP), Wetlands Reserve Program (WRP), and Farmland Protection Program (FPP), are critically important programs that assist farms with implementing nonpoint source pollution control measures.

The Environmental Quality Incentive Program (EQIP) is vital to Kentucky. It was established in the 1996 Farm Bill to provide a voluntary conservation program for farmers who face serious threats to soil, water, and other related natural resource concerns. It replaces several previous conservation programs including the Agricultural Conservation Program and the Water Quality Incentives Program. EQIP offers financial, educational, and technical help to install or implement structural, vegetative, and management practices. EQIP works primarily in priority areas where significant natural resource problems exist (Chapter 5, State Technical Committee). EQIP can also address additional significant statewide concerns that may be outside of the designated priority areas. For federal fiscal year 1997, Kentucky received approximately \$3.1 million dollars. Approximately 65 percent were used in 12 priority areas and 35 percent were used to address statewide concerns. For federal fiscal year 2000, Kentucky submitted 22 proposals to Washington, DC for funding consideration. Kentucky requested \$4.2 million for financial and educational assistance for priority areas, and \$2 million to address natural resource concerns outside of the priority areas.

Other Federal Sources: Other federal funding sources also help to implement NPS pollution control activities. For example, the U.S. Department of Interior provides financial support to control runoff from

abandoned mine lands and to remediate the impacts of acid mine drainage through the Office of Surface Mining. The Department also provides funding support to the National Park Service for nonpoint source pollution control. Both Mammoth Cave National Park and Big South Fork National River and Recreation Area are actively involved in reducing nonpoint source impacts both within and outside the federal boundaries of these parks. Many other federal agencies provide needed resources for nonpoint source control: U.S. Forest Service (oil and gas exploration reclamation requirements, etc.), U.S. Fish and Wildlife Service (Partners for Fish and Wildlife Program, etc.), U.S. Highway Administration (ICTEA, TEA grants), etc.

**SHORT-TERM OBJECTIVES AND  
PROGRAM MILESTONES**

Objectives/Milestones	Federal Fiscal Year (FFY)				
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**Objective 19. Provide opportunities for agency and public input into NPS Pollution Control Implementation**

<b>a.</b> Include NPS Advisory Committee members in the competitive project selection process.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>b.</b> Include KWICC members in the competitive project selection process.	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>

**Objective 20. Utilize SRF funds for NPS pollution control.**

<b>a.</b> Provide 20% of FY 2000 SRF as grants for Clean Water Action Plan projects		<b>2001</b>	<b>2002</b>	<b>2003</b>	
<b>b.</b> Pilot on-site wastewater project	<b>2000</b>	<b>2001</b>	<b>2002</b>		
<b>c.</b> Fund additional on-site wastewater projects			<b>2002</b>	<b>2003</b>	<b>2004</b>
<b>d.</b> Pilot urban, stream bank or other NPS project				<b>2003</b>	<b>2004</b>

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